Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME XI. NEW-YORK, MAY 17, 1856. NUMBER 36.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton Street N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN S. H. WALES A. E. BEACH.

Agents.

Federhen & Co., Boston. | Dexter & Bro., New York
A. Winch, Philadelphia. | E.E. Fuller, Halifax, N S.
A. G. Courtenay, Charleston. | S.W.Pease, Cincinnati,O.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.

TERMS--$2 a-year,—$1 in advance and the remainder in six months

Veterinary.

The Eye—An excellent lotion for sore eyes in horses and cattle consists of sulphate of zinc, 1 dram, tincture of opium, 1 dram, in 1 pint of rain water. It should be applied with a clean rag three times daily.

Ointment for Swollen Udder of Cows—Take marshmallow 4 ounces, olive oil 2 oz., and camphor 2 drams. Mix them thoroughly, and rub the affected part twice a day, after milking.

Mange Ointment—Take powdered aloes 2 drams, and mix with 1 oz. of turpentine, 4 of sulphur, and 6 of lard.

Agricultural Chemistry.

MESSRS. EDITORS—In No. 32 of your truly useful paper, you have inserted an article taken from the Genesee *Farmer*, in which a correspondent of that authority expresses his "high respect" for some "induction" of said paper, to the effect that gypsum in the condition of a dry powder will not combine with carbonate of lime and sulphate of ammonia, at the same time intimating that Professor Liebig had asserted that it would so combine.

It seems to be the fashion of late years for every would-be dictator on the subject of agricultural chemistry, and some publishers of agricultural newspapers, to misrepresent the theories promulgated by Prof. L.; but why a gentleman of college education should go out of his way to represent him as stating such an absurdity as the above is certainly strange, and I think he would be puzzled to find a sentence in any of Liebig's works calculated to lead any one to believe that gypsum (sulphate of lime) either dry or wet, would combine with either of the above substances. It is true that Liebig says (Agricultural Chemistry) :—"Carbonate of ammonia contained in rain water, is decomposed by gypsum, and soluble sulphate of ammonia and carbonate of lime are formed"—by double decomposition of course, not combined with the gypsum. Further on he says :—"Water is absolutely necessary to effect the decomposition of the gypsum on account of its difficult solubility. . . Hence it happens that the influence of gypsum is not observable on dry fields and meadows." Now had the gentleman taken the pains to ascertain what Prof. Liebig has said on these subjects, he might have saved himself the trouble of making any "inductions" or "trials on a large scale" about the matter.

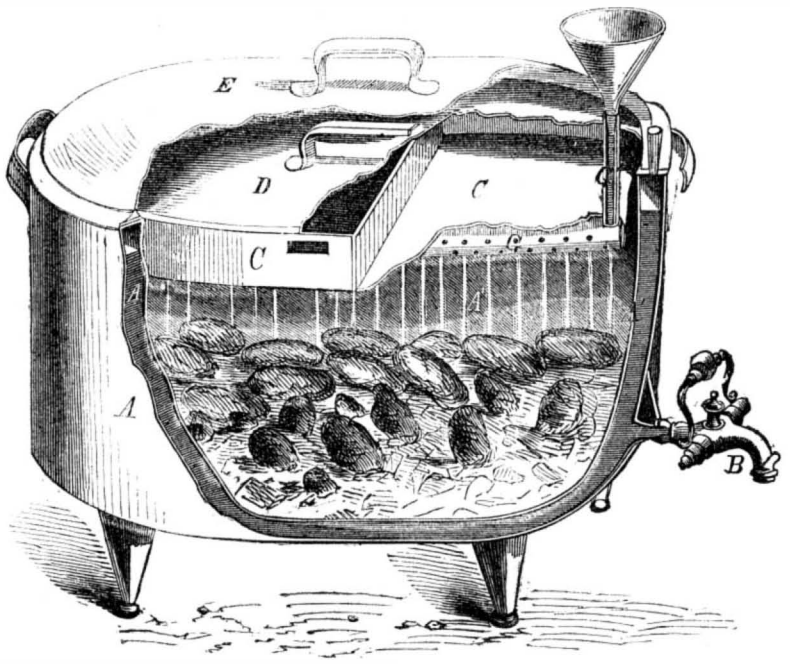
Detroit, Mich., May, 1856. S.

Cooking without Fire.

A few weeks since we noticed the grant of a patent to Mr. W. W. Albro, of Binghamton, N. Y., for a domestic contrivance for cooking victuals without fire; we now present an engraving of the invention.

The required caloric is generated by the employment of lime and water. Between these two substances there is a strong chemical affinity, and and when they are brought in contact, in the proper propertions, they unite with such rapidity and energy as to develope an intense heat. No decomposition takes place, and therefore no gas escapes; thus heat is produced without combustion. The inventor turns this phenomenon to a highly useful purpose in the present improvement.

APPARATUS FOR COOKING WITHOUT FIRE.

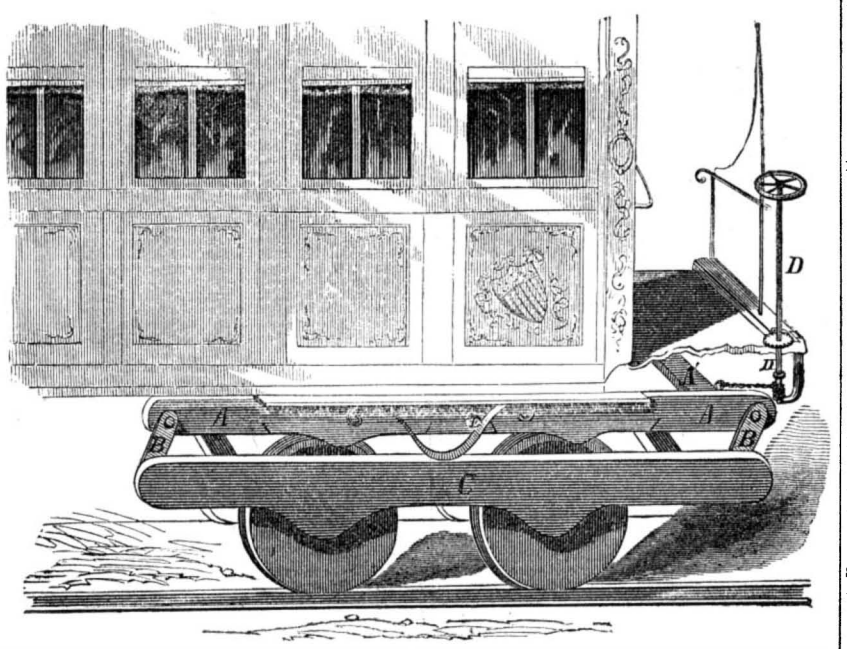


Our engraving represents a cooking apparatus intended for family use. A is a tin vessel in which sits another dish, A′, not quite as large, the space between being filled with coffee or tea; B is a faucet for drawing off the liquid. A thin layer of quick-lime is deposited upon the bottom of A′, and if potatoes or apples are to be roasted, they are placed on top of the lime. A shallow dish or tray, C, fits the top of A′; in this tray the beefsteak and other articles to be cooked are placed, and covered with double covers, D, E. Attached to the bottom of tray C is a perforated pipe, G, which connects with tube G′. The water is poured through the funnel into the perforated pipe, and falls in a shower upon the lime. Heat begins to generate immediately, and in a few minutes all the various commodities are seething away, the same as if they had a hot fire beneath them. The heat continues for half an hour or an hour, according to the quantity of lime used.

During an experiment made in our office, the other day, with one of these contrivances, we cooked a slice of ham, stewed a dish of sliced apples, baked some other apples, and boiled a quantity of water, all at once, at a consumption of perhaps a quarter of a cent's worth of lime.

The inventor makes several different sizes; the largest does not exceed a lady's band-box; among them is the dinner pail pattern, so arranged that the mechanic, when noon time arrives, has only to pour a half pint or so of water into his pail, in order to cook a warm dinner. The lime and edibles are, of course, arranged at home. This is a good improvement. Patented March 4th, 1856. Address the inventor for further information.

IMPROVED RAILROAD CAR BRAKE.



Improved Car Brake.

In this improvement the brakes, A, are connected by means of links, B B, to the truck frame, C. The front cross bar, A′, which unites the brakes, A, is connected, by a chain, with upright shaft D. The braking is done by turning the shaft, D, which pulls the brakes, A, forward, and also downward upon the top of the wheels. When the forward pull is given to the brakes, A, the line of force is changed by the links, B B, so as to operate downwardly upon the wheels. The brakes, A, it will be observed, are made slightly concave where they come in contact with the wheels. The friction of the wheels and brakes tends to pull the brakes down more tightly upon the wheels; so that the brakes are, in a measure, self-acting. This is an important feature. E is a spring, which, when the brakes are released, lifts them from the wheels.

The brakes operate equally well both ways so that a chain may extend from the opposite cross bar, and connect with the brake at the other end of the car, like the common method. The brakes may be applied to all the wheels of a car simultaneously, by one brakeman. If desirable, all the chains may be connected and extended to the engine, to be wound up by steam, thus putting the whole train under the the immediate control of the engineer.

The power being applied above the wheels, or vertically, there is no strain upon the axles. Those parts of the brakes that rub upon the wheels may be made of iron, and renewed with facility; indeed, the whole apparatus could be easily constructed of metal if desired.

This improvement is simple, and apparently very effective in its operations. Mr. V. Barnes, Washington, D. C., is the inventor, who will be happy to furnish a model and further information on application. Patented March 11, 1856.

A Freak of Lightning.

A correspondent writing to us from Ralls County, Mo., states that on the 26th of last month, during a heavy shower of rain, a huge ball of the electric fluid descended from the clouds and struck a locust stump three feet high in the middle of a level field in front of the door of his dwelling.

The stump was scattered around in fragments the distance of forty yards. The field, he says, contains eight acres, is bordered with very tall trees on the south and west, while on the east side there rises an abrupt hill, two hundred feet in hight, also crowned with tall timber, at the foot of which his house is situated. He has always considered that these trees afforded immunity to his house and lower objects from the strokes of lightning, and that the hill above was as good as a lightning rod. He wishes to know if the locust stump possessed any peculiar attractive power for the electric fluid, and why it was not attracted by the tall trees or elevated objects.

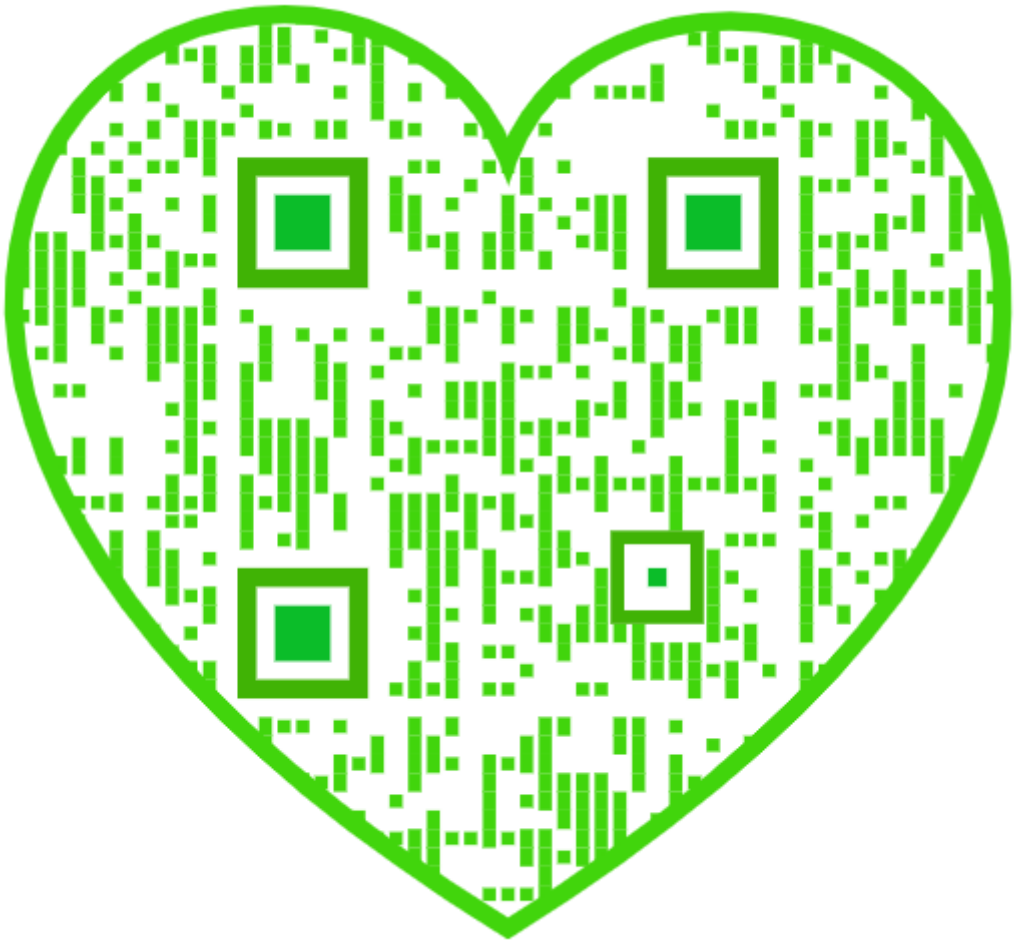
Neither the stump nor the trees have any peculiar attractive properties. The lightning seeks the nearest conductor to the earth, and that is all. His house being so near to the hill appears to be pretty safe from being struck with lightning; but it would be more safe to attach a good iron or copper conductor to it The distance between the tall trees and the middle of the eight acre park where the lightning struck, was too great to expect the trees on hill or border to conduct it to the earth from the surcharged cloud.

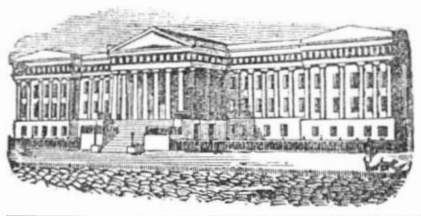
The Mississippi Railroad Bridge.

This great bridge over the Mississippi at Rock Island has proven to be such an object of antipathy to the steamboat captains that attempts have already been made so set it on fire. We hope they will cease their opposition to this bridge, and give up all attempts to destroy it. Their conduct has excited the public against them; and they may depend upon it that all their efforts will be fruitless to prevent the continuance of such a bridge over the river. If they burn down one it will only lead to the building of another, and a fireproof one. This bridge is composed of two structures or bridges—the Slough Bridge which crosses from Illinois to the island over a channel which the Mississippi has made on the east side of the island, and the Main Bridge which extends from the island to the Iowa shore.

The Main Bridge extending from the island to the Iowa shore of the Mississippi, consists of five spans besides the draw. Three of these spans are on the west side of the river, and two on the east side. The entire length of the bridge, from the island to the shore is 1,581 feet. Each span is 250 feet in the clear, and the draw is 286 feet.

© 1856 SCIENTIFIC AMERICAN, INC





[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 6, 1856.

BREECH-LOADING GUNS—Edward Lindner, of New York City: I claim, first, the application of a lever projecting partly into the gun barrel, or of a piston forming part of the barrel, in such a manner that the passage of the ball through the gun barrel, or the explosive power of the powder shall act upon the same, pressing the same outwards, for the purpose of communicating motion to a rod situated below the gun barrel.

Secondly, I claim the manner of disengaging and opening the breech by a motion obtained either by the passage of the cartridge through the gun barrel, or by the action of the expansive power of the powder, when the gun is fired off.

Thirdly, I claim the box, H, containing asbestos, or its equivalent, for the purpose of cleaning the rubbing surface of the breech in its motion upwards.

Fourthly, I claim the arrangement of packing the axis of the breech against the face of the gun nipple frame, in the manner and for the purposes specified.

Fifthly, I claim the arrangement of the vent or priming hole from the gun nipple to the cartridge chamber in the breech, in the manner as described.

Sixthly, filling the space in the recess, s, with asbestos, or its equivalent, substantially as described for the purpose specified.

REPEATING FIRE-ARMS—George Leonard, of Shrewsbury, Mass.: I do not claim the invention of a central screw, by which several concentric barrels may be attached to and disconnected from a chamber with a proper number of bores.

But I claim the invention in fire-arms of an expedient for connecting several concentric barrels to a chamber having an equal number of bores, and for partially, but not wholly, disconnecting the same, for the purpose of loading, cleaning, &c., consisting of a combination of a central screw with a spindle, having a projecting head, and a bore of two different diameters in the center of the concentric barrels, the front part of the bore being larger than the back part, and of the diameter of the projecting head, and the back part of the bore being smaller than the front part, and of the diameter of the spindle. The whole to be constructed substantially as described, but independent of any accidental properties.

I do not claim the invention of a revolving hammer for fire arms of any peculiar construction, or the invention of any device or expedient to regulate its motions, neither do I claim the invention in fire-arms of several concentric barrels having anything special or peculiar in their construction.

I claim the invention in fire-arms of a combination of several concentric barrels with a revolving hammer for their successive discharge, the reciprocating and revolving motions of which hammer are governed and guided by straight and oblique grooves sunk in its surface, each kind of groove to be equal in number to the barrels. The whole to be constructed as described, but independent of any accidental properties.

I do not claim the invention in fire-arms of a sear having a thumb piece or arm projecting beyond the breech or stock, so that the fire-arm may be uncocked by pressing on said thumb piece or arm, and easing down the hammer.

I claim the invention in fire-arms of a combination of a cocking lever, trigger, and sear with a thumb piece, the combination to have such characteristics that the fire-arm can be uncocked without discharge only by pressing said thumb-piece and easing down said cocking lever, the whole to be constructed substantially as described, but independent of any accidental properties.

FIGURING AND POLISHING MOROCCO.—Eugene L. Norton, of Charlestown, Mass.: I claim the rotating tool for polishing or figuring leather, when such tool has imparted to it a greater velocity than that due to rolling simply, in the manner and for the purposes specified.

GAS BURNERS—James Neal, of Boston, Mass.: I do not claim providing a gas burner with filter or strainer arranged within it, nor the application of felt cloth or other fibrous material or fabric as a strainer.

But what I do claim as my improvement is constructing the burner not only with a covered cup or stand reservoir, C, and a discharging pipe, h, extending into said reservoir, as described, but with one or more passages, b b i i, for the gas to flow around and into the cup, C, and through its loose sand or straining contents, as specified, my improvement enabling me to employ powdered quartz or a loose mineral matter or substance as a filter or strainer, and thereby attain advantages as stated.

SAWING MARBLE KERFS OF VARYING ANGLES—Samuel Nickelson, of Pulaski, Tenn.: I claim the adjustable or sliding bars, H, attached to the bars, E, as shown, when said bars are curved or bent so as to form saw frame guides in combination with the pivoted pitmans, L L, and eccentrics, K K, on the shafts, F F, whereby the saw frames and the devices for drawing them are all attached to and move with the bars, H, thereby allowing the saws to be adjusted more or less angularly with each, and at required distances apart with the greatest facility.

ARTIFICIAL STONE—Robert Neisch, of New York City: I do not claim the combination of alum solution with commonly calcined plaster of Paris, or gypsum, as I am aware that such mixture has before been used.

But I claim the preparation of artificial stone by treating plaster of Paris previously calcined together with sulphuric acid with olutions of alum and carbonate of ammonia, in the manner substantially as described.

OVENS—Jesse Ohmert, of Mount Morris, Ill.: I claim the arrangement of the flues, a a e e, and space, l, relatively with the fire chamber, C, and oven, F, as described for the purpose specified.

LUBRICATING GRIST MILL SPINDLES.—Clayton Brown, Sen., of Richmond, Ind.: I claim the oil chamber, D, with the tube, E, attached, the tube being provided with stop cock, F, and the chamber with a piston or follower, G, the inner end of the tube passing through the bush, B, substantially as described for the purposes specified.

ROTARY SHINGLE MACHINE—C. F. Beverly, of Lancaster, Ohio: I do not claim the knives or cutters, E E, secured to the wheel, A, irrespective of the manner of attaching said knives or cutters to the wheel.

But I claim securing the knives or cutters, E E, to the wheel or disk, A, by means of the bolts, i i, which pass through the knives or cutters near their cutting edges, and through the ears, h, at the ends of the plates, g, the heads of said bolts being beveled, and employing the screws, j, for securing the ears to the bars, e, attached to the wheel or disk, and adjusting the knives or cutters by means of the screws, k k, which pass through the bars, e, substantially as shown and described.

I further claim the bar, H, attached to the elastic bars, J J, by rods, b, which work in slotted rails, G G, at the ends of the platform or bed, F, the lower ends of the bars, J J, being connected to the rock shaft, K having a treadle, L, attached to it, and against which treadle a spring, M, acts for the purpose of feeding and properly presenting the block to the knives or cutters as set forth.

GUIDES OR CHUTES FOR TURBINE WHEELS—Jos. Bastion, of Theresa, N. Y.: I claim the stationary conical center, B, in combination with the adjustable parts, D E F, and supporters, C C, for the purpose of graduating the quantity of water discharged, and giving the desired direction to the same, the whole being constructed and arranged as described.

MOLD PRESS FOR HORSE COLLARS—Melvin C. Chamberlain, of Sheldon, N. Y.; I claim giving shape and form to horse collars by means of a mold press, constructed and operated substantially as described.

WAGON TONGUE—J. T. Baughman, of Frazeysburgh, Ohio: I claim constructing the tongue in two separate parts, A and B.

Second, I claim the arrangement and combination of the hounds, J J and S S, for the purpose of connecting the tongues, A and B, together substantially in the manner and for the purpose set forth.

VISE—Charles Buss, of Marleboro', N. H.: First, I claim making the movable jaws, A A, with the parts, B B, extending beyond the joints so as to be operated by the wedge, G, or its equivalent as set forth.

Second, I claim making both jaws movable, so as to open equally, and hold the various sizes on a line with the center of the whole tool, as described.

SELF-HEATING SMOOTHING IRONS—G. W. Bishup, of Brooklyn, N. Y.: I claim the tubes or pipes, b b, placed one at the front and the other at the back of the fire chamber or box, A, and the openings or holes, c, at the sides of said chamber or box, arranged substantially as shown and for the purpose specified.

I further claim the hollow projection, B, attached to the fire chamber or box, A, and communicating with said chamber or box by an aperture, d, and having a tube, C, connected with it, which communicates with the external air at one side of the fire chamber or box, A, substantially as and for the purpose set forth.

LUBRICATOR—Abel Breaer, of Saugatuck, Conn.: I do not claim the application of a piston or syringe to a grease cock, to force the grease against a pressure of steam.

But I claim the attachment of the syringe directly to the plug of the cock, substantially as described.

DOUBLE PANEL SHUTTERS—Charles S. Bruff, of Baltimore, Md.: Being satisfied that the construction of double panel shutters, and the application of wire netting as a mosquito bar are not my invention. I do not, therefore, claim either of them separately as such.

But I claim the combination of the double panel shutters with the wire netting inserted between the panels as an effectual bar against the admission of musquitoes or other insects into buildings, and sparks and cinders into railroad cars, &c.

PEGGING JACKS—Thomas D. Bailey, of Lowell, Mass.: I claim, first, the method of fastening the turn table, A, to the block, B, by means of the screw, C, and spring, o, substantially as and for the purpose described.

Second, I do not claim the lever, D, arranged as described, nor do I claim the use of the wedge, L, as a means of forcing the lever down and securing it to its place, as such an arrangement is already known.

But I claim the peculiar construction of the wedge, L, having a convenient handle, M, and pawl, Q, attached to it, which pawl plays into a ratchet, N, made in the turn table or bed plate, A, as described.

PARING APPLES—John D. Brown, of Cincinnati, O.: I claim the projections on the impelling wheels, J, and frame, G, when the wheel, J, is hung on a center within the circle of action of the projections and sufficiently eccentric to the frame, G, for the escape of one projection over the other as shown, and for the purpose specified.

HAND CORN PLANTERS—Reinhold Socklen, of Jersey City, N. J.: I claim the employment of one or more covering plates, E E, applied in connection with the seed box or tube and the plunger, and operating substantially as set forth, to lift a quantity of earth and deposit it over the corn which has been planted.

SAWING FELLIES—S. and Wm. H. Book, of Rushville, Ohio: I claim having the saw by means of adjustable arms to a horizontal shaft or axle, thereby allowing the saw to descend by its weight through the circular path forming the curvature of the filly, substantially as described.

MAKING PAPER FROM STRAW—Wm. Clark, of Dayton, Ohio: I do not claim the use of lime or other alkalies used in the preparation of vegetable material used in the manufacture of paper.

But I claim the boiling of coal tar in with the straw or other vegetable material for the manufacture of paper, in the manner and form set forth, and for other similar purposes, or purposes substantially the same.

HYDRANT—C. J. Cowperthwaite, of Philadelphia, Pa.: I claim, first, the employment or use of the case or protector, J, so connected with the valve rod, G, that the valve, F, will be opened when the case or protector, J, is moved aside to expose the nozzle, C, and the valve closed when the case or protector is moved over the nozzle.

Second, I claim the slide valve, F, arranged or applied to the cistern, E, as shown, viz., the valve being fitted within the cistern and connected with the rod, G, through the waste water passage, a, whereby the valve is made to work water tight, and the use of a stuffing box and packing avoided.

Third, I claim securing the cistern, E, with the pipe, D, and valve, F, attached within the case, A, by means of rod, M, as shown, whereby the above parts may be readily detached from the case and secured within it.

LARD LAMPS—Samuel Davis, of New Holland, Pa.: I do not claim a tube, or a feeder with apertures.

But I claim a tube with a cone-shaped feeder and lard heater in two segments, to admit of a double wick, with its apertures and the aperture, F, in the stem, E, all in combination, substantially as described and for the purposes set forth.

SPLITTING WOOD—Charles Day, of Lancaster, N. Y. and Alanson D. Lord, of Bethany, N. Y., assignor to Chas. Day, aforesaid: I do not claim the wheel and cams as my invention.

But I claim the particular application of the axes raised in the manner set forth, for the purpose of splitting wood.

SELF-REGULATED WINDMILL—Albert G. Field, of Quincy, Ill.: I claim hanging the sails, G G', on arbors or spindles, F, substantially as shown, and having the weights, I, attached to the cranks, b, of the arbors or spindles by cords, C, having buttons, h, upon them, as described, for the purpose specified.

I further claim raising the weights, I, by means of the cords, f, attached to the weights, I, and shaft or pin, J, arranged substantially as shown and described.

ROAD SCRAPER—John Gustine and J. M. Rankin, of Lewistown, Ill.: We claim the beam, E, sliding through bands H H, upon the tongue, B, attached by the chains, D, to the scraper, and operated and made fast by withdrawing or inserting the pin, G, or its equivalent, the whole constructed in the manner and for the purposes substantially as set forth.

POTATO DIGGERS—Abram Heulings, of Philadelphia' Pa.: I disclaim all systems of teeth or brushes which have radial positions upon revolving carriers at the time of action, whether they be upon an endless band or on a cylinder, as in Schaffer's patent of 1853, as their action is altogether different from that of my construction.

But I claim the combinatian of the excavator, E, and inclined open bed, e, with the series of rakes, R', so connected with the endless carrier that the rake teeth will be projected to the front of the excavator, at, or nearly at a right angle to its surface, and have a motion of translation along the bottom of the same previous to reaching the inclined bed, the arrangement and operation being substantially as and for the purposes set forth.

ELASTIC INDIA RUBBER CLOTH.—Nathaniel Hayward, of Colchester, Conn.: I do not claim the elastic fabrics usually denominated shirred goods, and made of threads or strips of rubber combined with cloth.

Nor do I claim what are commonly called woolen elastic goods; nor do I claim the mere union of cloth with india rubber, for this has been done in various ways, without producing an elastic fabric.

But I claim the producing an elastic fabric of uniform strength, by uniting a sheet of rubber with sheets of cloth thinly coated on one side with a vulcanized compound of rubber, the sheet of rubber before before it is united with the sheets of cloth being, in the modes substantially as set forth, so prepared that the central part of it is completely vulcanized while the surfaces are not.

BAGASSE FURNACES—Abraham Hager, of Baton Rouge, La., and Youngs Allyn, of New Orleans, La.: We claim the application to bagasse furnaces of a skeleton arch, made and arranged as described, which will retard the bagasse in falling direct on such portions of the fuel in a state of combustion, or in any other mode substantially the same, which will produce the same effect.

FURACES FOR SMELTING IRON—T. H. Powers, of Wyocena, Wis.: I claim so arranging the pipe, 2, 2, 2, in connection with the combustion chamber and stock, as described, that the air passing through the pipe shall be heated and discharged, in the manner and for the purpose set forth.

GUM ELASTIC CLOTH—H. G. Tyer, of Ballard Vale, Mass., and John Helm, of New Brunswick, N. J. Antedated Jan. 9, 1856: We do not claim the weaving of cloth woven with the threads of the weft diagonally to the threads of the warp, for that was patented by John Healey, on the 18th Dec., 1855; nor do we claim the stretching of cloth, so that the threads of the weft while held in the stretched condition shall stand diagonally to the threads of the warp.

Nor do we claim, generally the cementing of threads or sheets of rubber between two pieces of cloth, so stretched—nor do we claim any elastic fabric consisting of two pieces of stretched cloth, united in whole or in part by vulcanizable materials.

We claim as our new manufacture an elastic fabric composed of two pieces of cloth either woven with the threads of the weft in a diagonal position to the threads of the warp, or of common cloth stretched so as to force the threads in such relative diagonal position, combined and caused to adhere together exclusively by a vulcanized compound of india rubber or gutta percha, the two pieces of cloth being first united by the vulcanized compound, and the compound being vulcanized after the union, substantially as set forth.

FELTED YARNS—M. A. Johnson, of Lowell, Mass.: I do not claim the use of an endless apron, draw rolls, twist, belt, reel, or self-adjusting belt, each being in itself old and well known.

But I claim the arrangement of the steam rubber, R, in relation to and in combination with the endless apron, y y, constructed and operating substantially in the manner described.

DUMPING SCRAPERS—M. S. Kahle, of Lexington, Va.: I claim so attaching the body of the scraper permanently to a butt axle, supported in a pair of wheels, as that said body may be dumped and returned back to its original position, and ready for its next load, without stopping the horses or changing their direction, substantially as described.

WASHING MACHINES—J. T. King, of New York City: I claim the construction of a rotary cylinder, in connection with internal and external pipes, arranged in such a manner that through said pipes steam can always be let into the lower part of the cylinder, and escape at the top while the cylinder is in motion or stationary, and that by the same arrangement hot water, cold water, or steam can be let into the cylinder at the top, and escape at the bottom, while said cylinder is in motion or stationary.

SAVING CLOVER SEED—M. S. Kahle, of Lexington, Va.: I claim, in combination with a gathering and conveying apparatus, such as described, the rubber and meshed wire concave, for separating and throwing out the grass, leaves, weeds, and other impurities, from the heads, pods, &c. &c., passing the latter to the thrashing cylinder, concave, blast, and screen underneath them, substantially as set forth for the purpose specified.

HANGING GATES, DOORS, &c,—Samuel Oberholzer, of Terre Hill, Pa.: The ratchet bar, the pinion, the ratchet wheel and the pawl, I am aware, have been combined with each other in producing an adjustable upper hinge for a gate, and therefore I do not claim such combination.

But I claim the arrangement of the pawl, b, and pawl holder, c, with each other and with the levers, f g, the ratchet wheel, a, the pinion, k, and the rack bar, h, substantially in the manner and for the purpose set forth.

COOKING APPARATUS—George Pierce, of New York City: I claim the employment of the double oven, arranged and combined with the roasting apparatus, substantially as set forth and for the purposes described.

BARREL HEADS—N. W. Robinson, of Keesville, N. Y.: I claim, first, the peculiar construction of the clamp, k, as shown and described, viz., said clamp being formed of a ring, e, having segments, d, attached to its under side by set screws, g, placed between the upper surface of the segments and under surface of the ring, by which construction the clamp may be enlarged or contracted so as to suit different sized barrel heads.

Second, I claim the stationary bed piece, J, and rotary planing disk, E, in combination with the sliding clamp, O, for the purpose of allowing said planing disk to plane and chamfer the whole surface of one side of the barrel head and then support it in its position while being chamfered and planed on the other side.

EXTRACTING STUMPS—S. W. Ruggles, of Fitchburgh, Mass.: I claim the lever frame, C, operated by the lever, G, pawls, f H, ratchet, F, strap, E, when the above parts are attached to the sled, A, and arranged as shown, and used in connection with the frame or strut, I, for the purpose specified.

EXTENSION WAGONS—E. D. Rosencrantz, of New York City: I claim the employment of the slide bars, b c a, constructed as described, when used with the bars, K K, in the manner and for the purposes substantially as set forth.

COMPOSITIONS FOR STUFFING LEATHER—John Rose, of Newark, N. J.: Being well aware that other meal than rye, and other oil or fatty matter than cod, if commingled with the wax, rosin, and molasses, can be used, and would produce nearly the same effects, I therefore do not claim the rye meal, or the cod oil, exclusively, nor the precise proportions specified.

I claim softening the leather by stuffing it with a compound made of paste, of rye or other meal, beeswax, rosin, molasses, and oil or other fatty matter, in the proportions as specified.

HOOP MACHINE.—James and Sylvester Sawyer, of Fitchburgh, Mass.: We claim the described combination of the rest, D, and the pressure roll, D, with the hollow faced cutter head, C, operating in the manner substantially as set forth.

Second, we claim the method described of tapering the hoop for the lap, by means of the lever, T, spring top, o, operating in the manner and for the purpose set forth.

DOOR FASTENE.—W. H. Smith, of New York City: I claim the use of the screw nut, d, working on the hinged stem, b, as a means of adjustment of the plate, e e, when employed in combination with the staple hook, a, all operating in the manner and for the purposes substantially as set forth.

HEATING FEED WATER APPARATUS FOR STEAM BOILERS—Thos. Sloan, of St. Louis, Mo.: I claim, first, a vessel separate from the boiler, but communicating both with the steam and water chambers thereof, in which the water previously to its entrance to the boiler is heated by passing in a thin stream, in its upper part, and also by the contact of the steam with the top of the body of water contained therein, substantially as specified.

Second, the arrangement of the purifying vessel, the pipe, D, with its funnel mouth, the internal heating chamber, G, and the pipes, E and F, substantially as described.

ARTIFICIAL LEGS—Wm. Selpho, of New York City: I claim the semi-cylindrical joint, b, fitted with the pipe, 2, and pin, 3, to connect said joint together and give facility or lubricating the same, in the manner as specified.

I also claim in combination with said semi-cylindrical joint, the elastic cushion, 6, at the ankle joint, for the purposes specified.

I also claim the elastic cushions, 9 and 10, on the upper part of the heel and the lower part of the limb, c, to act in the manner, and for the purposes specified.

I also claim attaching artificial toes of india rubber, to the wooden part of the foot, to act in the manner and for the purposes specified.

SALT EVAPORATORS—Benj. Hood, of Albany, N. Y., and E. P. Monroe, of Charlestown, Mass.: We claim the construction of evaporating apparatus of two concentric rotary cylinders, supplied with liquid, heated and operated substantially as set forth, to effect evaporation from the weaker portion of the liquid, and economize fuel.

SOWING SEED BROADCAST—Enos Stimson, of North Craftsbury, Vt.: I claim the rotating horizontal arm or tube, F, provided with valves, L, at its ends, and used in connection with the adjustable board or plate, M, provided with the same circular recess, e', the above parts being constructed, arranged and operating substantially as shown, for the purpose specified.

LADLING OF MOLTEN GLASS—W. P. Walter and Jacob Green, of Philadelphia, Pa.: We claim the employment of a suspended ladle for facilitating the manufacture of glass, substantially in the manner set forth.

PROPELLERS FOR LIFE BOATS—Geo. W. La Baw, of Jersey City, N. J. (assignor to himself, Jos. Colton, of New York City, and T. Howell, of Ewing Township, N. J.) I claim constructing the propellers with blades on both sides, so as to enable the boat to be worked by the same mechanism when either side up, substantially as described.

MARBLE SAWING MACHINES—A. F. Ward, of Louisville, Ky.: I claim suspending the saw frames or sashes D D', within the frames, C K, by means of the chains, a a, which are attached to rack bars, E, having weights or counterpoises, e, connected to them, the rack bar, E, being connected by pinions, g, with rack bars, G, to which the connecting rods, J, of the saw frames or sashes are attached, substantially as shown for the purpose specified.

SHEEP SHEARS—R. M. Wilder, of Coldwater, Mich.: I do not claim operating the shears by the grasp of the hand, as this has been done.

I claim the rotary cutter, in combination with the spring handle, A, coupling rods, B, levers, C, spring pawls, D, spur wheel, F, and wheels connecting spur wheel with cutter wheel, or equivalent thereof, arranged and operating substantially as and for the purposes set forth.

R. R. CAR SEATS—Geo. Willard, of Boston, Mass. (assignor to himself and N. W. C. Jameson, of Antrim, N. H.): I claim the combination of the divergent mortises, g h, or their equivalent, the guide groove, I, and the projection, k, as applied to the seat holder, C, and the journal, e, provided with a tenon, as specified, and arranged in a stand, B, substantially as explained.

I also claim combining with a supporting socket or stand, B, and the chair seat or chair, the lateral bearers, F F, and legs, G G' each provided with feet, m n, the same being for the purpose specified.

SCYTHE FASTENING—D. W. Green, of Bernardstown, Mass. (assignor to himself and Aretas Ferry,): I claim the combination of the adjustable wedge and cam lever, as applied to the binding stirrup, and snath, as arranged and made to operate therewith, substantially as specified

SAW MILL DOGS—G. W. Hill, of Waverly, N. Y. (assignor to Francis Lyons, and G. W. Hill): I claim the peculiar form of the bail block, having a front and back rest or bearing in connection with the arm, G, clasping the shaft of the screw, C, in the manner and for the purpose described.

I also claim the die or dies, H H, in connection with the spring bar, I, the rest, e, and the guard, f, the whole arranged, combined, and operated, in the manner set forth.

MACHINE BRICK—S. W. Wood, of Washington, D. C.: I claim molding brick by concussion, whether it be by this or any other mechanism.

FELTING HAT BODIES—J. S. Taylor, of Danbury, Ct.: I do not claim, of itself, a vibratory bed or rubber, operating in connection with rollers for felting hat bodies, nor yet merely of itself, rollers having a positive motion or reverse action for various rubbing and other purposes, as such are common to felting and other machines.

But I claim the vibrating rubber or bed, E, in combination with the rubber, M, having a positive movement or rotation on their own axes given them in a direction causing the outer points of their peripheries, to travel in the direction of their general travel, as acquired by the rotation of the central shaft, B, as specified, when the same are arranged for operation together, as set forth, for the purposes described.

ADDITIONAL IMPROVEMENTS.

FAUCET—Moses Woodbury, of Boston, Mass. Patent originally dated March 1, 1856: I claim the combination of the screw, or its mechanical equivalent, with a hollow cylinder valve constructed as specified, and the spring when the latter is placed behind the valve, substantially as set forth.

HOLDING WINDOW BLINDS—H. A. Frost, of Worcester, Mass. Patent originally dated Jan. 23, 1855: I claim the improved manner of hanging the brace, D, so that it will operately freely by its own weight, and casting or swedging the notches, or their equivalent, so as to retain the blind in any desirable position.

Digestion Observations.

Alexis St. Martin, noted in the annals of medical science, and whose case is described in all our elementary works on physiology as having, when a soldier, shot himself accidentally in such a manner as to lay open his stomach and expose the entire process of digestion to scrutiny—upon which Dr. Beaumont made a valuable series of observations—has been in our city for a few weeks lately, being brought from Montreal by Dr. Buntine. A number of our physicians have been experimenting upon him with different kinds of food with the view to ascertain the time required to digest them. A thermometer introduced into his stomach through the opening rose to 101° Fahrenheit. The carrot is consumed in five to six hours. Rare roast beef will thoroughly digest in an hour and a half. Melted butter will not digest at all, but float about in the stomach. Lobster is comparatively easy of digestion. Upon the application of the gastric juice to a piece of purple tissue paper the color at once faded. In relation to the patient's health, Dr. Buntine observed that it had been uniformly excellent, having, since his recovery from the first effects of the wound, supported a large family by his daily labor. These experiments do not differ materially from those made by Dr. Beaumont twenty years ago. St. Martin is at present a little upwards of fifty years of age, of a spare frame, but apparently capable of considerable endurance. He is in excellent bodily health, and has much vivacity of manner. The opening in his stomach has had no injurious effect upon his health, nor has it prevented him from pursuing active and severe labors. If he does not keep a compress to the aperture in drinking water or swallowing anything else, the whole contents of the stomach will pass out through that opening.

American Institute.

On the evening of the 8th inst. the annual election for officers of the above-named Institute took place, when the following gentlemen—the old officers—were re-elected. They are as follows:—Robert Pell, President; D. M Reese, W. Hall, and E. Smith, Vice Presidents; H. Meigs, Recording Secretary; W. B. Leonard, Corresponding Secretary; E. T. Backhouse, Treasurer.

© 1856 SCIENTIFIC AMERICAN, INC

(For the Scientific American.)

Motions of the Planets.

The article on page 200 this volume SCIENTIFIC AMERICAN, headed "Centrifugal Action among the Stars," deserves a few remarks.

A planet moving in its orbit is constantly attracted by gravity towards the sun; and were it not for inertia, would soon reach it. But the planet is in motion, and the resistance it opposes to having the direction of the motion changed, exactly balances the force of gravity, and it moves in a curve around the sun. And all the force of gravity acting on it from its first being projected in space, has been consumed in overcoming its inertia, and causing it to describe a curve around the sun. It has moved just as fast and as far as if it had moved in a direct line, and if loosed from gravity, would move on in a right line through space. The rotary motion of planets, fly-wheels, and all machinery moving around fixed centers, are governed by the same laws; each individual part in circular motion representing the planet in its orbit, and whatever connects it with the center of motion, represeni-ing gravity.

If a wheel or globe have a rapid rotary motion, it will resist a change in the direction of its axis; and as the resistance at its nodes—or where the lines of circular motion of its parts cross the lines of its former motion—is in different directions, it will have a tendency to revolve on a new axis. Hence, the cause of the axis of the globe of the toy having a tendency to remain in a horizontal position, and revolve around the center of support, is the combined action of the support upwards, gravity downwards and inertia. When it rests on the support, the force of gravity will incline the globe to sink and let the other end of its axis lower; but the least iaclination of its axis will change the direction of the motion of the rotaticg parts, and by the principles of inertia, will resist this change. The parts at each side of the globe, where the direction of rotation is changed, (the nodes,) make an effort to move perpendicularly, down and up, and incline the globe to revolve horizontally. But so soon as the revolving commences, the situation of its axis is changed horizontally, and the matter moving at the top of the globe will tend inwards towards the support, and that at the bottom outward, which two actions will tend to raise it, and keep it moving round the support horizontally.

But I had taken up my pen only for the purpose of noticing the conclusion, "that the double motion" of the toy, "explains the compound motion of our planet around the sun," or that it presents an argument at all in favor of the nebular hypothesis. There is no such movement in tha heavens. neither can they be, as those of the toy. The globe has a fixed axis extending over some distance at each pole; one of them is confined by the support, while gravity attracts the whole machine towards the earth; and these two forces—the support and gravity—balance each other, and, combined with the rotary motion of the globe, cause it to rotate horizontally.

But to suppose that the laws of nature could form out of nebulous matter a sphere, with a fixed axis extending past the poles, and apply a force at one end at right angles to the axis, that shall not act on the globe, and another equal force acting in a contrary direction, on each particle of matter of the globe, is preposterous. And yet, under no other conditions can such a movement be accomplished in the heavens. J. B. CONGER.

Jackson, Tenn.

Cotton Seed.

MESSRS. EDITORS—Perhaps you recollect that I inquired of you last year if there were any patentable novelty in the process of singeing off the short cotton on the cotton seed. A patent has recently been taken out by A. A. Hayes, of Boston, Mass., for "maturing the cotton seed after it has been separated from the cotton by heat artificially applied, so as to render the husk brittle and easily separable from the kernel." This is just what I did in the oven of a stove, and then I singed off the short cotton from a small quantity, which made the husk very brittle. In a late number of the SCIENTIFIC AMERICAN, E. Conkling, of Cincinnati, suggested the invention of machinery to remove the short cotton or fiber from the seed, and the using of this fiber for making paper. In the winter of 1855, Wm. Coleman, Esq., of Euclid, wrote me from New Orleans, La., stating that if my hulling machine could hull cotton seed, he did not know of a better business to engage in than making cotton seed oil. In May, 1855, I received a barrel of the seed from him, and after trying the experiments referred to, I tried to hull it, without any more preparations excepting screening. The hulling machine removed the short cotton without breaking the husk, and by giving it a higher velocity, the husks were opened, and the clear kernels came out. I got 6 per cent of short cotton, and I showed a sample to Mr. Younglove, paper manufacturer in this place. The sample had some of the husks mixed with the cotton, but these could have been screened and separated. I made an estimate of the cotton seed crop of 1853, and allowing one half the short fiber to be applied with seed for manure, 65,257 bales could be obtained for making paper. If it is desirable to remore the short cotton from the seed, or if it is desirable to open the shuck at once, to let out the kernels for oil, the machine is already invented that can do this.

OLIVER P. STEVENS.

Cleveland, Ohio, May, 1856.

[A patent has lately been taken out in England for destroying the short fiber on cotton seed by steeping it in sulphuric acid.—[ED.

Steam Engines for Circular Saw Mills.

MESSRS. EDITORS—Most circular saw mills are designed to be portable, therefore the engine should be portable also. Such an engine should be as compact as possible. The employment of two pumps—one for cold and another for hot water—are almost universal attachments with our western engine builders, whereas eastern engineers almost as universally repudiate more than one pump. There can be no advantage obtained in the use of two pumps; one is sufficient. The water can be heated in its passage from the pump to the boiler, by passing the pipe through a heater box set in the exhaust steam pipe. The supply can be regulated by a stop cock. The barrel of the pump should be as small as the plunger will allow, otherwise the air will prevent the necessary vacuum

It is better to place the steam chest on the side instead of on the top of the cylinder, as the rock shaft and standards can thereby be dispensed with. The piston should have a high speed, otherwise it will be necessary to get up the speed by a counter-shaft, or a very large fly wheel, both of which are objectionable. With a long stroke a high speed is almost unattainable, therefore the stroke should be as short as possible, and the necessary capacity of the cylinder should be obtained by an increase of its diameter. This plan possesses the advantage of shortening the bed plate and bringing the entire engine within a small compass. Such an engine should be fitted to work the steam expansively, and with a variable cut-off to allow for different kinds of sawing harder and lighter work, such as the variable depth of line cut, and hardness of the timber. The entire power of the engine is sometimes required, while at other times one half of its power will be sufficient. Hence the benefits of a variable cut-off in the sawing of timber are self-evident.

These remarks apply to reciprocating engines. If oscillating engines are not liable to springing their piston rods and flattening their pistons, they certainly are to be preferred, because they can dispense with the steam chest, the eccentric and rod, and many other adjuncts required for the working of reciprocating engines; and besides, they occupy less space. They are more portable, because more simple.

It is desirable to have an engine of unlimited and uniform speed attached directly to the saw shaft; such qualities, however, do not belong to the reciprocating engine. The rotaryengine, did it not contain many objections not yet removed, would be the best of all. It is to be hoped that a perfect rotary steam engine for steam saw mills will yet be invented.

J. W. GAREY.

Grenada, Miss., 1856.

(Our Foreign Correspondence.)

Italian Fishing Nets, Dredging Machines, and Sawing Apparatus.

ROME, April, 1856.

MESSRS. EDITORS—The fishing arrangements employed here, on the Tiber, consist of scows moored near the center of the stream, having a revolving shaft, to which are attached long wooden arms. Two of these arms had oblong iron frames, to which were fastened a couple of nets, bagging towards the shaft, and about three by six feet in size. The two other arms had boards about two feet long by one in width attached to them. The force of the current caused this machine to revolve, ensnaring all the small fishes unlucky enough to swim within reach of the nets. I watched one of these concerns for a long time before I could persuade myself that it was actually intended for fishing purposes; but when I saw one small fish struggling in the meshes of the net, and observed an attendant stretch out a scoop and secure it, I no longer doubted the evidence of my senses, and felt very much inclined to send you drawings "by express." I felt somewhat anxious to have you speedily lay before your readers the particulars of this improvement, that some of them might profit by the novelty, at least, which it possesses.

The modern Romans are more remarkable for their religion than they are for ingenuity. The turning lathes that I observed consisted of a hickory pole, one end planted in the ground and the other fastened by a rope to the spindles, which, being made to revolve by a treddle under the workman's foot, coiled up the rope on one spindle, the rebound of the hickory stick turning the wood, first one way and then the other, until the article required had been "turned" out in the desired shape. When I was a youngster I have often seen a more improved article of the same kind in use among our farmers; but that was so long ago I did not expect to find any approach to it in establishments celebrated here for being the largest manufactories of cabinet furniture.

In Rome, also, it is refreshing to see carpenters planing boards, by hauling the plane towards them; or sawing veneers singly, with a saw placed between two rope-secured handles. Even the sawers of fire-wood had an improved method of doing their business, by placing one end of the saw blade upon the ground, bearing upon the other end with their bodies, and then cutting the stick of wood in two by rubbing it backwards and forwards over the edge of the saw.

In Ancona I saw contrivances for raising mud from the bottom of the harbor, which goes a little behind anything of the kind I have ever seen elsewhere. One of these concerns consisted of a large scow, on which two drum-like wheels had been erected—a large and small one. The larger wheel was about fifteen feet in diameter, having stepping boards fastened on the inner circumference. A troop of men trotted over these stepping boards, tread-mill fashion, causing the wheel to revolve and coil up a rope upon the smallest drum wheel—some six feet in diameter. This rope acted upon a very long and heavy pole, one end of which was plunged into the water, and brought up about a wheelbarrow full of mud—when its lower extremity finally emerged from the water, and exhibited an oyster-rake-looking implement attached there for that purpose.

The other mud machine resembled the walking beam of an engine, built of wood, ten times the usual size of the iron engine. To one end of this concern was attached the mud rake, the other end being raised or lowered by means of a wooden screw, about a foot in diameter, sticking up some twenty feet into the air, from one end of the scow on which this machinery was located.

I believe I could fill several columns with descriptions of various articles, as far behind our times as the people are who use them; and might continue to illustrate the very slow progress Italians generally have made in the use of machinery. J. P. B.

April, 1856.

The new suspension bridge over the falls of Montmorency river, Canada, fell last week with a terrible crash while a cart was passing over it.

The Hights to which Balloons have Ascended.

MESSRS. EDITORS—Your worthy correspondent Wm. Partridge should adopt the motto of 'First see that you are right then go ahead" before he makes such a sweeping assertion as "the lightest gas used in filling balloons is sub-carburetted hydrogen, whose specific gravity is as 5 1-2 to 10 to the density of the atmosphere on the planes of the earth." From this he concludes that "aerial voyagers are apt to imagine they rise higher than they really do." And "much doubts if any balloon ever rose two miles in perpendicular hight."

Your correspondent seems to know nothing about the ascent of Biot and Gay Lussac with Napoleon's war balloon *Intrepede*, after its return from Egypt. Lussac ascended with it a second time, purely for purposes of science and truth, and being assisted by such men as Berthollet, Laplace, and the celebrated chemist Chaptal, there is hardly any room to "doubt" the accuracy of the experiments, as the very best instruments had been provided by the Academy of Arts and Sciences." Lussac rose to a hight of 23,912 feet above Paris, and 23,040 feet (being more than four miles and a quarter) above the level of the sea. The barometer sunk to 12·95 inches. I have myself ascended until the barometer sunk to 15·14 inches.

Gas generated with zinc and sulphuric acid is not more than one-thirteenth the weight of atmosphere, and when iron is used, it is, with ordinary precaution, not more than one-eleventh the weight of atmosphere. Your correspondent is also in error as regards the attainable hight with a balloon filled with carburetted hydrogen of five-tenths the weight of common air. It does not follow that it will rise *only* to the hight of 7 1-2 pounds of atmospheric pressure. The hight attainable is governed by the ascensive power of the balloon when leaving the earth, and room in the balloon for the expansion of the gas. Thus, a balloon may be charged with carburetted hydrogen and ascend to a hight of four to five miles, which has been done by the great Vauxhall balloon in England.

I agree with Mr. Partridge that "It is necessary, in reasoning on any subject, to take special care that our theory is based on some provable facts, or our reasoning will produce confusion."

The carburetted hydrogen used for lighting purposes in this country is rarely five-tenths the weight of air. In the city of New York I found it to be nearly five-tenths, and in all other American cities I seldom found it to be four-tenths the weight of common air. When cannel coal is used for its production it is five-tenths, and sometimes heavier; but with the commonly used bituminous coal it rarely reaches four-tenths. The gas companies find it more profitable to make poor gas and good coke than to make good gas and poor coke. Hence they should be called "Coke Manufacturing Companies, and supplyers of gas incidentally," rather than Gas Manufacturing Companies. JOHN WISE.

Lancaster, Pa., May, 1856.

Progress of Astronomical Science.

Seventy-five years since the only planets known to men of science were the same which were known to the Chaldean shepherds thousands of years ago. Between the orbit of Mars and that of Jupiter there occurs an interval of no less than three hundred and fifty millions of miles, in which no planet was known to exist before the commencement of the present century. Nearly three centuries ago, the immortal Kepler had pointed out something like a regular progression in the distance of the planets as far as Mars was broken in the case of Jupiter. Being unable to reconcile the actual state of the planetary system with any theory he could form respecting it, he hazarded the conjecture that a planet really existed between the orbits of Mars and Jupiter, and that its smallness alone prevented it from being visible to astronomers. But Kepler soon rejected this idea as improbable. In this space no less than thirty-three small planets—the Asteroids—are now known to revolve, and perhaps double this number may yet be discovered. These small planets are believed by Dr. Alexander and others to have once formed a single thin planet.

© 1856 SCIENTIFIC AMERICAN, INC

New Inventions.

Trial of Steam Fire Engines.

On the 6th inst. a trial of steam fire engines took place in the Park, this city, to compete for three prizes, of $500, $300, and $200, for the first second, and third best. Only two engines appeared really as competitors—that of Lee & Larned, with Carey's pump, (noticed by us a few weeks since,) and a new one by Messrs. Burnham,—all of this city. Another, constructed by J. Smith, was on the ground, but this is all the notice it requires—it was a mere toy. The contest was between the engines of Lee & Larned and Messrs. Burnham. In 12 minutes after lighting the fires, the engine of the former party was at work, while that of the latter took 20 minutes. Both of these engines threw good streams of water,—but the rotary pump the best. Burnham's is constructed with two vertical steam cylinders and pumps; its workmanship was coarse, as if the whole engine was too hastily constructed. It contains some good features, and might be made to operate better. The engine of Lee & Larned leaked a great deal of water and steam. To us the experiment was not so satisfactory, as far as it relates to the condition of the engines.

The prize Committee of the Common Council, we understand, have decided that the first prize should be awarded to J. Smith, exhibitor of the working model; the second to Lee & Larned, and the third to Messrs. Burnham. This is a contemptible decision. We are not only surprised that the first prize was awarded to the small, incomplete fire engine, but that it should have been awarded a prize at all. Its owner, we think, must feel as surprised as ourselves, for we think he never expected any such award. The Committee of the Common Council evidently were unfit to decide such a question. It should have been left to a committee of practical machinists and engineers.

American Wagon Boat in France.

Mr. Francis, of this city, inventor of the life boat which bears his name, has been experimenting before Louis Napoleon on the river Seine, with his Army Wagon Boat. The wagon was launched in the water, where it floated like a boat. The men on board, to the number of sixteen, went on the sides without being able, in spite of all their efforts, to make the gunwale touch the surface of the water. The wagon, after that, was directed into the current of the river, to show that a heavy load could be by that means transported from one bank to another without its being necessary to take off the wheels, so that a train of these wagons could continue to follow their route without the least hindrance. Afterwards the train being detached, they maneuvred the tumbril separately, like a row boat. The body of the Army Wagon is made on the life-boat principle, and is very strong. The Emperor was highly pleased with the experiment.

Steamboat Fire Engines.

On Friday, last week, a public exhibition of a No. 5 Worthington steam force pump was made on board the ferry boat *Nassau*, at the Wall Street Ferry. The pump is to be used in cases of great leakage, fire on the boat, and also for fires along the docks, and ships in the harbor—thus assisting the Fire Department. The cylinder of the pump is ten inches and a quarter in diameter, and the stroke 10 inches. The pump threw a seven-eighths inch stream of water through 700 feet of hose, up the Brooklyn Hights, and over the top of the highest houses. The experiments were very satisfactory. All our city ferry boats should be compelled to employ powerful steam pumps, so that they can be used as huge floating fire engines, in cases of fires among our shipping, which, at present, is very indifferently provided for. One such pump would have prevented the great conflagration of shipping which took place two years ago, when the *Great Republic* was nearly burned down at her dock, and had to be scuttled to save her hull and cargo.

We also recommend that the Board of Underwriters pay the expense of these pumps, or reduce their rates of insurance.

Belting Farms with Trees.

All our farmers on the broad prairies of the West, or in any part of our country exposed to bleak north-west winds, should have their farms belted on the north and west with trees. Such forest beltings should be about half an acre wide, and the trees should be planted with a view to beauty and usefulness. The would offer a partial resistance to the fury of the cold winds, would afford shelter to crops of winter wheat, and to houses and live stock. Forest fringes of this character would render our western prairies more warm and beautiful.

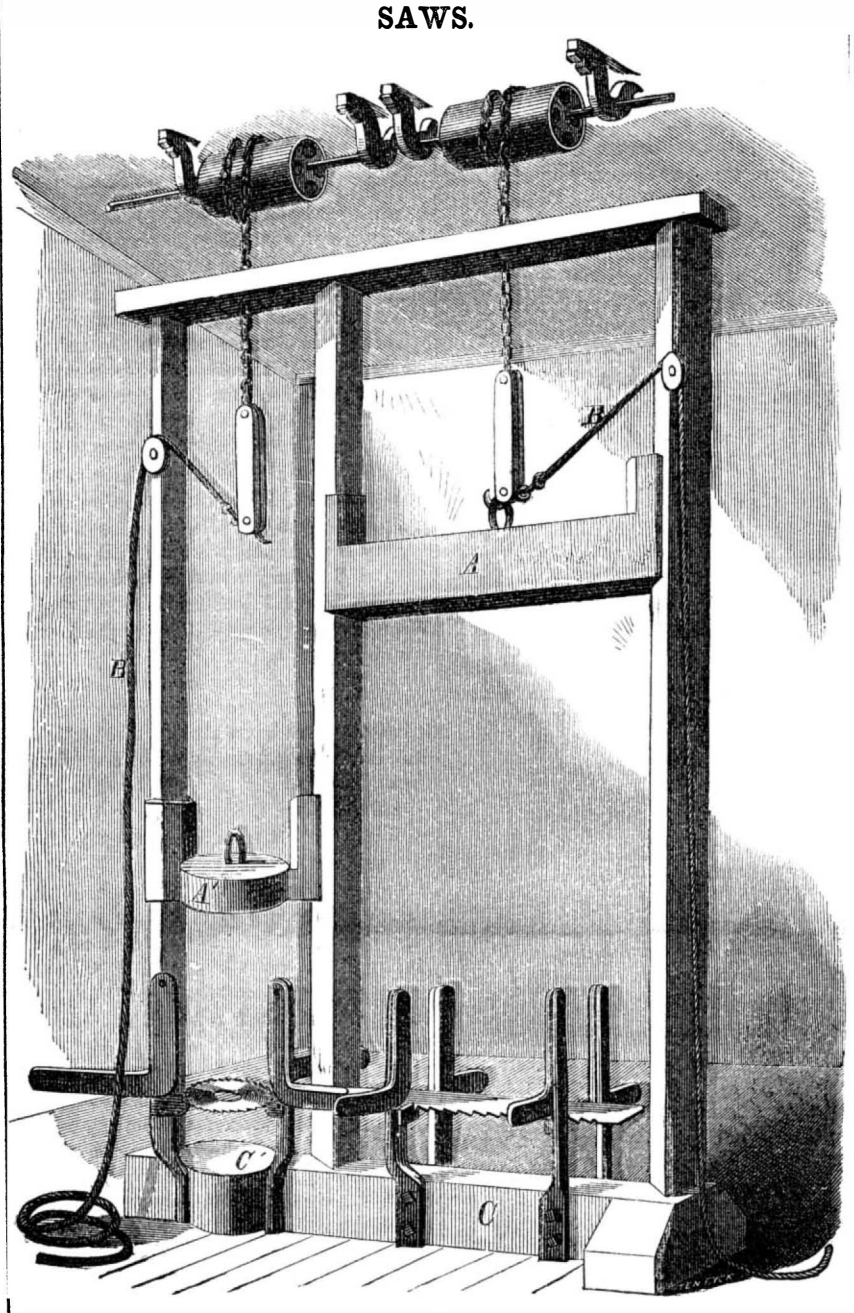
Explosion of a Steamer.

The boiler of the *Washington Hunt* steamboat exploded at Albany on the 8th inst., and three persons were seriously injured. The boiler was under the main deck, but the explosion was so great as to raise it from the hull about six inches, and tear away all the fixtures above it. This was a tug boat, and not subject to inspection under the New Law.

Factory Fire.

The Kent Mill, at Pawtucket, R. I., was burned down on the evening of the 8th inst.

IMPROVEMENT IN TEMPERING AND STRAIGHTENING SAWS.



Improvement in the Manufacture of Saws.

The usual method of tempering saws is to heat and then dip them in oil. This process is slow, laborious, and costly; it is also disadvantageous, because the saws become warped, and require to be hammered up straight again by hand.

The present improvement consists in tempering and straightening the saws at one operation. This is done by heating the saws to the proper degree and then pressing them with a sudden and powerful stroke, between two surfaces of cold iron. Drop presses are employed for the purpose.

Our engraving shows a pair of presses conjoined. one for long the other for circular saws. After being heated the saws are supported in mid air, on buttons attached to the framing at the base of the machine. The heavy drop weights, A A′ are now liberated by pulling the cords, B B′, and the weights fall upon their respective saws, drive them down, and press them upon the solid iron base, C, with tremendous force. The sudden blow hardens the metal by rendering it more dense, and also straightens the saw.

Nothing can be more quick and perfect than this process. Its advantage over the common method is self-evident. The quality of work produced is said to be much superior to the old plan.

The weights are raised by means of chains and pulleys above, to which power is applied. The hooks in the blocks at the ends of the chains are liberated at any instant from the weights by pulling the cords.

The mechanism required in this process, it will have been observed, is quite simple, and not expensive. Its use effects an important economy in the manufacture of nearly all kinds of saws, and also improves their quality.

Mr. Henry Waterman, at the foot of South Eighth st., Williamsburgh, N. Y., opposite New York, is the inventor, and will be happy to give further information. Patented.

Business of the Patent Office.

A long and interesting list of new patents were granted by our government last week, of which no less than *nineteen*, or more than one-third of the whole, were obtained through the Scientific American Patent Agency. Our great success in this branch of business is no doubt as generally pleasing to our numerous clients as to ourselves.

To give an idea of the value of patent property, we would mention an incident in respect to one of the grants included in the present list. It is a patent for a hydrant. We were written to only a few days since by the inventor, urging us to use special exertions in his behalf, for he said he had been offered the sum of *two hundred thousand dollars* for the invention provided a patent was obtained. Our efforts were successful, and our client's fortune is doubtless made.

If inventors and capitalists will look around them and count up the many businesses which were originally started upon, and are now connected with patent rights, they cannot fail to discover that enterprises of this description yield larger profits and are more sure in their returns than almost any others of a speculative nature. The patent for any good and meritorious invention is in itself a precursor of wealth.

Whipping the Devil Around the Stump.

We stop our press to insert extracts from a Bill which has just been unanimously reported favorably upon by the Senate Committee on Patents, for alleged amendments of the Patent Laws.

The bill was drawn up and presented by Senator James, of Rhode Island, (Chairman of the Senate Committee on Patents); and while its ostensible purpose is—we quote the language of the bill—"to protect the public on the one hand against the oppressive use of invalid patents, and the really meritorious inventor from the piracies of dishonest infringers," we perceive other objects are at stake. We have time only to copy the leading features of the Bill for this week's paper; but enough we give to open the eyes of the public as to the nefarious scheme which the operators of this bill are endeavoring to hurry through Congress. The gist of the bill is as follows, which we copy from the *Tribune* of the 12th:

"1. All patents are to issue originally for a term of five years only, instead of fourteen years, as at present.

2. At or before the expiration of this term, any patentee may procure an extension for a further term of fifteen years—making twenty in all—instead of the present original issue of fourteen years, to which the Commissioner of Patents is now at liberty to add a further term of seven years if he thinks proper.

3. All existing patents are subjected to the provisions and entitled to the advantages of this act."

Read and re-read the last paragraph, and what conclusion can any one come to except that a new dodge is attempted, to get the extension of patents asked for by Congress this session, put through by fraud under the cloak of better protection to the inventor?

Will our Senators and Representatives in Congress allow themselves to be imposed upon in this manner? And while the majority are opposed to the extension of the Woodworth and other patents, will they vote for this bill, and thus grant the extension of the huge monopoly, which their State Legislatures have, in many instances, instructed them to vote against and take measures to prevent

We do not believe, if the matter were understood, that the Bill of Senator James, with the obnoxious clause alluded to, would be entertained by our Congress for a moment; and it behooves every man in the country, who feels any interest in breaking up these huge monopolies, to write to their Members of Congress at once, and protest in the most forcible language against the further extension of these patents, whether the Bill comes up as a direct petition, or if cloaked under a Bill, for the ostensible better protection of inventors and patent property.

We shall next week publish the "Bill" as presented to Congress without curtailment, and express our views thereon at more length.

In the meantime, will all those who are opposed to the further extension of the Woodworth monopoly act at once, and act in the manner which, in their judgment, will be most effectual in putting a stop to the high-handed scheme which threatens to fasten the hydra-headed monster upon them for another term?

Government Shipbuilding.

The Chicago *Democratic Press* of the 3d inst. contains a long article by W. W. Bates, on defective government ships, in which he points out the causes why they are inferior to merchant vessels. The principle cause is set down to a want of practice on the part of those long in the employ of government as Naval Constructors.

© 1856 SCIENTIFIC AMERICAN, INC

Scientific American.

NEW-YORK, MAY 17, 1856.

Ighly Important Patent Decision. — Stamping the Date on Patented Articles.

The question has often been asked of us, 'does the stamping of the year on which a patent is granted upon the article patented fulfill the strict letter of the patent law dated August 29th, 1842 ?" and we have answered, "it does not," although, no doubt, it in part complied with it. It has been, and is a very common custom for patentees to stamp the year of our Lord on their patented articles, and the question of thus violating the Act of 1842 never until now has been brought to a test before a Court.

The first case embracing this mooted point of our patent law, was tried in the U. S. Circuit Court, this city—Judge Betts presiding—on Tuesday, the 6th inst. The parties were Samuel W. Hawley, informant prosecutor, agt. Albert G. Bagley, manufacturer of an improved extension metallic pen and pencil case, for which he obtained a patent on January 1st, 1850. The complaint was that the pen holders manufactured, sold, and offered for sale under the patent were merely stamped "Albert G. Bagley, patented 1850," and that the patentee was liable to the penalty of $100 for every such article sold or offered for sale by his authority, according to the 6th Section of Act of 1842, which says the *date of the patent* must be stamped or engraved on the patented article. One pencil case was purchased at Mr. Bagley's store by one of the witnesses, and it was testified by several that they saw the same case sold and a number of others offered for sale for $14 per dozen. The defence was, 1st, That the spirit of the law was complied with by the stamp of the year the patent was granted on the articles vended and offered for sale. 2d, That Bagley himself did not sell nor offer for sale the pencil cases against which complaint was made. 3d, That the evidence on the part of the plaintiff did not show that the pencil cases bought and offered for sale and against which complaint was made, were identical with that described in the patent granted to A. G. Bagley on Jan. 1st, 1850. 4th, That while the allegations of the plaintiff charged the defendant with selling "extension penholders," his patent was for an "improvement in pen and pencil cases," therefore the declaration was defective.

The case was decided by the Jury in favor of the defendant on the last point of defence. Judge Betts charged the Jury that, to hold a defendant in penal actions under sections 5 and 6 of the Act of 1842, it is not necessary to prove that he personally sold or authorized the sale of the articles, for the non-stamping of which he is sued, nor that they were sold to the person using, nor must his partner be joined with him; but it is sufficient to show that the articles in question were placed in the market by the patentee, and that, therefore, a variance between the pleadings and proof in the above particulars is unimportant. But that the plaintiff, in penal actions, is bound to make his material allegations correspond with his evidence, and that, therefore, if the Jury found that the "extension pen-holders" alleged to have been patented and sold were not identical with the "pen and pencil cases" for an improvement in which the patent was proved to have been issued, they would be bound to render a verdict for the defendant; which they did without leaving their seats. He also charged the Jury that the defendant was bound to stamp the day of the month as well as the year, on each article offered for sale.

The law says: "The article or articles shall be stamped or engraved with the *date* of the patent." The date does not mean the year, nor the month on which the patent was granted, but the *day*, for the patent goes into effect from the day it was issued, and ceases to be effective on the very day, not the year, it expires.

We are glad that the case went in the way it did for the defendant, because there was no intention on his part to do wrong, and his neglect to comply with the full letter of the law did no person any injury. He was mistaken in supposing he fulfilled the whole law by merely fulfilling a part of it; and it would have caused us pain if he had been mulcted in a sum of over $5,000—the number of pencil cases said to be offered for sale—when there was no intention on his part to deceive any one.

We believe that hundreds of thousands of patented articles have been sold deficiently stamped or engraved, like Mr. Bagley's pencil cases. We should be sorry if any one of the owners of them were put to the same trouble and expense as he. For the future, let all patentees be careful to put the exact date of their patents on their articles, and they will then be perfectly safe.

Boilers of Naval Steamships.

The boilers of the new steam frigate *Merrimac* are stated to have proven entire failures. Some person furnished private information on this subject to the New York *Tribune* and the *Times*, of the 8th inst., and both of these papers presented severe editorial remarks on the subject. Who the person was that furnished these papers with such information we do not know, but his charges are public, and amount to this:—The boilers of the *Merrimac* are leaky; the tubes are liable to burn out; there are no means of access to repair the tubes and remove incrustations.

These are serious charges against both the principle of construction and the workmanship of the boilers. It is pretty generally believed that the *Merrimac*, thus far, has proven to be a slow steamer. One of our correspondents has attributed her sluggishness in the water to her inferiority of model; but he did not lay his finger, as it were, on her defects. Her model may not, indeed, be the best, but even if it were the finest in the world, and if her engines were the most skillfully planned and constructed, she could not attain to a respectable speed if her boilers were as faulty as they have been represented to be.

Charges of old fashioned notions and want of practice have been brought against the Naval Board and Naval Architects, while the engineering corps of the navy have been highly complimented for efficiency and proper organization. In justice to the Naval Board, if the boilers of the *Merrimac* are defective, let the blame be laid at the door of the proper parties. We understand that the boilers of the *Merrimac* were built according to the patent of the Chief Engineer of the Navy, and that all of the six new frigates are to be furnished with similar ones. His patent was granted on Nov. 28th, 1854, and the claim embraces "an arrangement of a series of tubes placed vertically, or nearly so, between an upper and a lower, and connecting vertical water spaces, when said lower water space is made directly over the fire chamber, and the draft is returned over said lower space and among the vertical tubes." The Chief Engineer is a practical man, and is considered to be skillful and observing. He was at one time first engineer of the ill-fated *Arctic*, and was selected for his practical fitness to fill his present office. If his boilers have proven defective in any important particular the public should know the exact facts of the case.

No parts of a steamship should be more carefully planned and constructed than the boilers. They are the fountains of power; therefore, if they are defective, the vessel—as a steamer—cannot but prove a failure, even if all else about her be faultless. The article in the *Times* on the subject is written in such a confused manner as to afford evidence on the part of its author of unskillfulness in the arrangement of the information furnished him. It deprecates copper tubes as accumulators of scale, whereas, the reverse of this is the fact. The correspondent of the *Tribune* has asserted that the *Merrimac's* boilers were planned to evade a certain patent. This statement betrays a personal interest on his part in the matter, which renders his statements suspicious. But be they true or false, since they have been publicly made, they should (if they can) be as publicly refuted. That the brass tubes where they connect with the iron plates may leak from unequal expansion and contraction is likely; if this is so, let us have the whole truth of the matter.

Chemistry of Cast Iron.

In 1849 a chemical laboratory was established at the United States Arsenal at Pikesville, Md., for the purpose of analyzing the cast iron employed in the manufacture of guns, and the charge of the experiments was committed to Campbell Morfitt, Esq., as analitic chemist, with Prof. Booth, of Philadelphia, as consulting chemist. The experiments extended over a considerable period of time, the final report of them being made last year. A great number of them were instituted, the reports of which are very minute, and exhibit a profound knowledge of chemical analysis. They are valuable to iron manufacturers and engineers, in relation to two kinds of cast iron—that produced by the cold and that by the hot blast. The average specific gravity of the cold blast iron was 7·218, and the tensile strength was 29·219. The specific gravity of the hot blast iron was 7·065; the tensile strength 19,640. The extraneous substances combined with the iron were found to be allotropic carbon, combined carbon, silicium, slag, &c. It would appear that the iron having the greatest amount of combined carbon with the least slag, was the best, and was found to be made by the cold blast. The hot blast appears to drive off some of the combining carbon at the same time leaving a greater quantity of allotropic carbon, existing in a form analogous to graphite, or black lead, which is injurious.

The Report says, "The slag and allotropic carbon, being of a brittle nature, and not united with the iron, coat the crystaline plates of metal, and diminish their surface of contact, consequently it follows that the tensile strength of the metal must decrease in proportion to the increase of slag and allotropic (uncombined) carbon."

From the analysis the lesson is derived, that hot blast is inferior in strength to the cold blast iron, and the reason of this is owing to a greater amount of slag and uncombined carbon in the former. Great advances have yet to be made in the manufacture of cast iron to improve its quality and reduce its cost. It requires two tuns of coal to make a tun of pig iron; we can easily conceive the benefit that would accrue to all if some inventor were to discover a process to manufacture it with half this quantity of coal. We hope such an improvement will yet be made.

Recently a kind of pig iron (the Thomas, of New Jersey,) has been brought into the market, which, for the most of purposes, will supersede the Scotch pig iron, and it sells for three dollars less per tun. It is very soft, and flows smoothly, and is therefore well adapted to mix with our general hard and strong American cast irons. Its soft quality is due to the ore, from which it is made, not from any new improvement, we understand, in its manufacture. The great variety of iron ores in our country, and the vast extent and easy working of our coal beds, demand from our iron manufacturers much better and cheaper cast iron, than has been produced. We ought to make—and yet shall make, we believe—the cheapest iron in the world. Who can describe the benefits that would be conferred on our people, if iron were sold for one half its present price. It would tend to reduce the cost of machinery, and give an impetus to every branch of business in our country—agriculture, architecture, commerce, &c. We hope and trust our iron manufacturers will heed these suggestions, both for their own sakes and that of the public.

These remarks conclude our observations on the Reports of the U. S. officers of Ordinance.

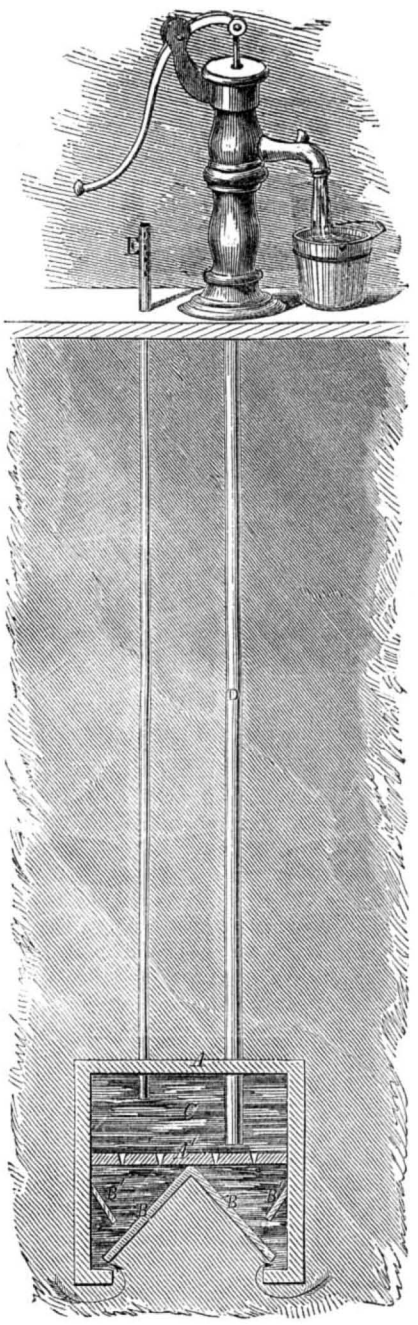
Changes at the Patent Office.

Mr. Wm. Chauncey Langdon, for several years past Examiner in the Patent Office, and for the last two years a Chief Examiner, has resigned his post. He purposes shortly to make a tour in Europe, after which he returns to establish himself in the patent business at Washington. We wish him the highest success. Mr. Langdon is a gentleman of sound practical judgment and extensive scientific learning. He has filled the office of Chief Examiner with credit to himself and satisfaction to those whose affairs it has been his duty to adjudicate. In his retirement the Patent Office loses one of its most efficient officers.

Mr. Thomas H. Dodge succeeds Mr. Langdon as Chief Examiner, and has already entered upon the duties of his office. He takes charge of the class which embraces Agricultural improvements, in which he has for some time been acting as Assistant Examiner. Mr. Dodge is from New Hampshire, and is a man of rare mechanical knowledge, acute discrimination, and scientific ability. We regard his appointment as a happy one. From what we know of his past history we feel confident that he will be an honor and an ornament to the department.

Recent American Patents.

Improved Reservoir Well—By W. D. Bartlett of Amesbury, Mass.—This improvement is intended to dispense with the necessity of stoning up wells, and also to afford a supply of purer water than is obtained in the common manner. It consists in sinking a cistern under the ground to the proper distance, which shall serve as a reservoir to collect the water. The liquid is raised by means of a pump.



In our engraving, A is the cistern, which is open at the bottom and divided within by diaphragms, or partitions, A′, B B′. The water rises through perforated diaphragm, A′, into reservoir C, whence it is made to ascend through pipe D, by means of the pump. E is an air pipe extending from the surface of the ground to the reservoir.

The water which supplies the reservoir comes from the lowest strata. In ordinary wells the water is apt to flow from the upper or surface strata, bringing ammoniacal and other impurities. An open well is also objectionable, owing to the free access it affords for insects and rubbish, which tend to make the contents impure.

By the present improvement the water is collected at some distance from the surface of the ground, and is never exposed to contamination; at all seasons it will be found cool and perfectly pure.

This method of obtaining water is simple,

© 1856 SCIENTIFIC AMERICAN, INC

cheap, and permanent. The advantages we have named are important, and will doubtless insure for it an extensive introduction. It has been in successful use for a long time. Patented Feb. 19, 1856. Address the inventor for further information.

Improved Hand Seed Planter.—By B. Boeklin, (assignor to Fenwick & Boeklin,) of New York City.—This machine consists simply of a seed tube, straight plunger, or seed slide, with a conical valve on its lower end, and has four covering plates hinged on the lower end of the seed tube in such a manner that in operating the plunger, or seed slide, the plates clamp and lift a quantity of earth, and drop it upon the corn as fast as planted, and cover it up. The parts are compact and durable. It is said to operate with perfect certainty in all kinds of soils.

Marble Saw.—By Samuel Nicholson, of Pulaski, Tenn.—A central shaft having radial arms is employed, the connecting rods of the saw frames being attached to said arms, so that when the position of the arms is changed the angle at which the saws cut will also be varied. The arms are altered or adjusted to any position by means of set screws. The machine cuts two sides of a tapering block of marble or monument at once.

Broadcast Seed Sower.—By Enos Stimson, of North Craftsbury, Vt.—This is a light two wheeled vehicle, resembling a gig. It is furnished with a tube having hollow radiating arms, somewhat like a turbine water wheel. The seed to be sown is introduced at the top of the tube, falls down, and is discharged through the hollow arms by centrifugal force; the tube receives a very rapid rotary motion by being geared with one of the wheels of the vehicle. The arms have an adjustable valve at their ends, by which the quantity of seed sown is easily regulated.

Extension Wagon.—By E. H. Rosencrantz, of New York City—A vehicle on this principle is so made that it may present the external appearance of a common single-seated buggy wagon; but by pulling out a pin it may be stretched or extended, presenting two seats and a lengthened body, ready for use. The change is effected instantly, as if by magic. The seats are so formed than one fits snugly within the other, and the body is made of two parts, one portion sliding inside of the outer.

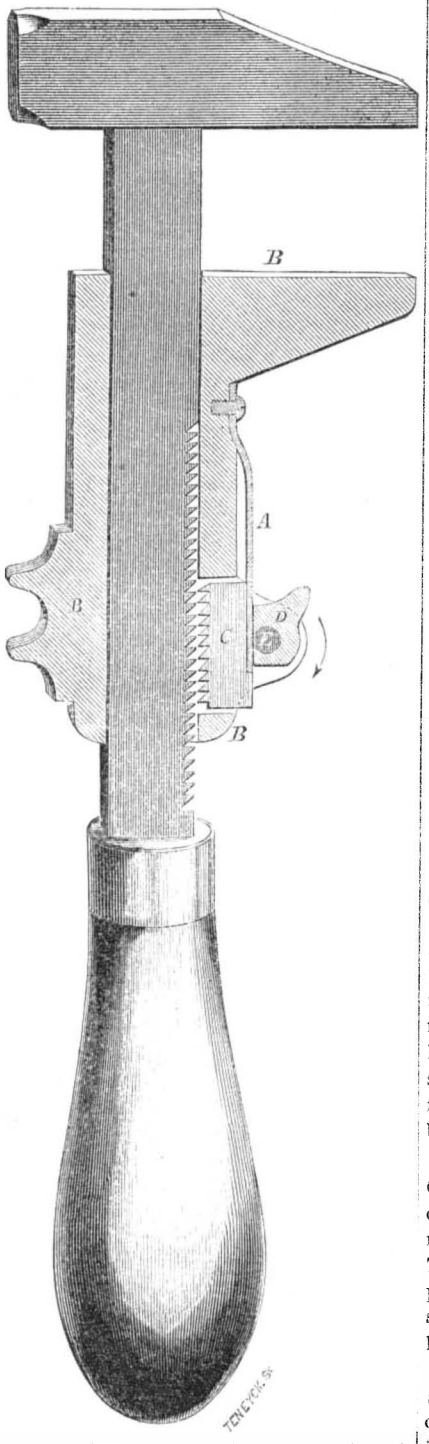
Improved Method of Preventing Boiler Incrustations.—By Thomas Sloan, of St. Louis, Mo.—This invention consists in providing a tank or vessel, the upper part of which is in free communication with the steam space of the boiler, and the lower part with the water space thereof. The vessel is furnished with a certain arrangement of pipes and other appliances, by which the feed water is introduced near the top of the said vessel, and caused to descend in a thin sheet through the steam space. During this transit through the steam, the water becomes heated to 212°, at which temperature the mud and other impurities separate and fall to the bottom of the vessel, which is cooler, and there remain, while the purer water above is fed into the boiler. The purifying tank may be cleaned of its deposits without trouble, as often as required. We are informed that this invention renders Mississippi river water so pure, before it reaches the boiler, that scarcely any trouble is experienced from incrustation. It is a good invention.

Felly Sawing Machine.—By S. and W. H. Book of Rushville, Ohio.—The nature of this invention consists in having a saw frame or sash attached to a horizontal shaft, which is allowed to turn in its bearings, the saw sash being so attached to the shaft that it may be adjusted and allow the saw to be brought nearer to or further from the shaft. The saw is fed to its work by the weight of the sash which operates with a reciprocating motion, the saw cutting the stuff in circular strips, or in strips forming part of a circle or fellies. By changing the distance of the saw from the shaft, the diameter of the fellies is changed.

Improved Lubricator.—By Abel Breaer, of Saugatuck, Conn.—This invention consists in the attachment of a syringe directly to the plug of the cock, so that by turning the plug in one position, and charging the syringe with oil, and by afterwards changing the position of the plug the contents of the syringe, may be discharged against a pressure of steam, into the cylinder, steam chest, or other part of the engine to which the cock may be applied. This is an exceedingly simple apparatus for the purpose.

Marble Saw.—By A. F. Ward, of Louisville, Ky.—Relates to the sawing of marble blocks in polygonal taper form for monuments, fence posts, etc. The invention consists in peculiar means employed for raising and lowering the saw frames, and also in the manner of adjusting said frames, whereby the marble blocks may be sawed at almost any desired angle with great convenience and rapidity.

Improved Wrench Hammer.—By P. McManus, of Troy, N. Y.—The object of the invention is to afford a more easy and convenient mode of moving the sliding jaw, than most of the wrench hammers present. In nearly all of them a screw nut is employed, by turning which the jaw is moved; but the operation is comparatively slow, and in adjusting some parts of the machinery, cannot be used at all.



In this improvement there is a spring, A attached at one end of the sliding jaw, B, and having a dog piece, C, at the other end. D is an eccentric button, which, if turned by the finger, in the direction of the arrow, bears on spring A, presses and holds the teeth of dog C, into gear with the teeth of the rack on the handle of the hammer. The sliding jaw is thus secured in any desired position. By turning the button, D, in a contrary direction, the dog, C, is released, and spring A lifts its teeth clear from the rack, so that the jaw may be moved. Button D is pivoted at E to the sliding jaw. This improvement is a simple one, but it adds greatly to the convenience of the wrench, costs less to manufacture, is equally strong, &c. The exterior of the jaw is round, the dog being encased within; our engaving is made sectional in order to show the parts. Patented April 1, 1856. Address the inventor for further information.

Improved Sad Iron.—By G. W. Bishup, of Brooklyn, N. Y., opposite New York City.—The ladies would call this invention an improvement in flat irons. The sad iron is used for pressing out cloth, hats, &c. It differs from the domestic flat iron in being hollow, and carrying fire within it to keep it hot. Charcoal is the fuel generally employed. There is a small chimney at one end and a draft opening, level with the fire, at the other. The objections to its use are, that when the iron is moved forward a current of air is forced down the chimney, which drives out the ashes from the draft or opening to soil the work. This improvement consists in elevating the draft opening so that the ashes cannot blow out; also in such an arrangement of both openings that a good draft of air shall be introduced beneath the fire, no matter in which direction the iron is moved.

Improved Hydrant.—By C. J. Cowperthwait, of Philadelphia, Pa.—Consists in enclosing the hydrant in a case, one portion of which, at the spout, is hinged. To procure water, the spout part must be opened; this portion is connected, by means of a rod, with a valve placed down far enough in the ground to avoid freezing. When the spout door opens the valve also opens and allows the water to flow; close the door, and the valve shuts off the water. The valve employed is a flat or sliding valve, and it is placed inside of a water chamber; the liquid presses against the back of the valve and always keeps it tight, so that the use of a stuffing box, which is objectionable on account of leakage, is dispensed with. A hand rod extends up from the water and valve chamber to the cap or top of the hydrant, and by removing said cap the chamber and appurtenances can be lifted out for repair, whenever necessary. The above strikes us being a valuable invention.

Barrel-head Cutting Machine.—By N. W. Robinson, of Keeseville, N. Y.—The main feature of this improvement consists in the employment of an upright spindle on which there are radiating arms; the ends of the arms are furnished with cutters, and when the spindle revolves they describe a circle on the board, and cut it half way through. The board is then turned and cut through upon the other side, leaving a completed head. The diameter of the heads may be varied by moving the cutters further in or out on the arms. Suitable clamps are arranged for accurately holding the board.

Improved Self-Regulating Wind Mill.—By Albert G. Fields, of Quincy, Ill.—This improvement relates to the class known as horizontal wind mills. It consists in a peculiar manner of hanging the wings or sails, and in having weights connected with the arbors or spindles of the sails, whereby the wind mill is rendered self-acting, and also prevented from being re-acted upon by the wind.

Method of Lubricating Mill Spindles.—By Clayton Brown, Sen., of Richmond, Ind.—In ordinary grinding mills, one of the stones remain stationary while the other revolves. The spindle or shaft of the revolving stone passes through a bearing in the center of the stationary stone; this bearing requires to be kept lubricated in order to prevent friction. As at present constructed, it is necessary to stop the mill and lift off one of the stones in order to lubricate said bearing. The present improvement consists in having a small pipe to communicate with the bearing, and extend to some convenient place outside of the stones; by means of a syringe oil, may, at any time, be forced in to lubricate the spindle, without stopping the mill. This is a good improvement.

Improved Apple Parer.—By J. D. Browne, of Cincinnati, Ohio.—Consists in attaching a knife to a vibrating frame, by a spring, and operating said frame and knife in such a way as that the knife is made to move or traverse over one half the circumference of the apple, and yield easily to the inequalities of the surface of the fruit, removing the skin therefrom in the most perfect manner. This contrivance operates with great ability.

Improvement in Bakers' Ovens.—By Jess Ohmert, of Mount Morris, Ill.—Consists in a peculiar arrangement of flues, whereby the heat from the furnace is made to pass entirely around, and the oven thus exposed to a large volume of heated air of the proper temperature. Said to effect an important economy in fuel, and do better cooking.

Stump Puller.—By Solomon W. Ruggles, of Fitchburgh, Mass.—Consists in the employment of a lever frame operated by a pawl, ratchet, and strap, using in connection therewith a frame or strut, which is connected by a chain to the stump to be extracted; the strut is connected to the lever frame by a rod. The lever frame, pawl, ratchet, and strap, are attached permanently to a sled, by which the implement is readily moved from place to place. The apparatus may be applied and operated with the greatest facility. Its cost of manufacture is small.

Improved Shingle Machine.—By C. F. Beverly, of Lancaster, Ohio.—Consists in a peculiar manner of attaching cutters to a rotating disk, and also in the means employed for feeding the block to the cutters. This machine is cheap of construction, easily worked and very durable.

Recent Foreign Inventions.

Tinning Flyers.—A patent has been obtained by E. Heys, England, for tinning the fibers used in preparing and spinning cotton, for the purpose of preventing rusting, and for saving labor by not requiring them to be so often rubbed up to keep them bright. We fail to discover the utility of the invention as the flyers in cotton and woolen factories are well greased while in use, there is little danger of their becoming rusty.

Lubricating Oil.—A patent has been taken out in England by H. Hart, for a lubricating oil, which can be made by any person. It consists of seven gallons of lard or other oil mixed with one gallon of crude turpentine. They are stirred together until the turpentine is fully incorporated with the oil. It is stated that this mixture also makes a good and safe burning oil. It can, no doubt, be sold at a a lower price than pure lard oil. We hope some of our readers will give it a fair trial, both for burning and lubricating, and give us the result of their experiments.

Improvement in Candles.—The London *Mechanics Magazine* describes a good improvement in the manufacture of candles by A. J. Austen, (chandler,) of London, the object of which is to harden the outside or surface of the candles. Stearic acid is mixed with five per cent. of white wax, and then dissolved in half their weight of methylated spirits of wine. By rapidly dipping tallow candles into this solution and withdrawing them they will be found covered with a thin hard film, and may be immediately handled.

Improved Machine for Sweeping Chimneys.—A. Washington, Esq., of Cleckheaton, Eng., has lately secured a patent on the above-named machine, which is favorably spoken of in the London *Mining Journal*. Such machines are very useful in all cities where bituminous coal is used for fuel. The improvements in the machine consist, firstly, in obtaining expansion and contraction at the head or brush part of the apparatus for sweeping chimneys and flues by a mode or method nearly similar to that which is adopted for effecting the opening and closing of ordinary umbrellas and parasols, by ribs and stretchers. But it differs therefrom, inasmuch as there are two stretchers jointed together, and having whalebones or brushes secured to the points of junction, or thereabouts, the extremities of which stretchers may be free to move in slide grooves or guides, and connected to springs, to secure under the variations of pressure that occur in use, the expansion and contraction of the brush or brushes, whereby the stretchers in action will be caused to form a quarter or less angle, according to the variations of the pressure. And whereby the brushes will be caused to protrude considerably from the rod or center, filling the chimney or flue, and effectually cleansing the same, and yet so much compressed as to pass into and through a common chimney pot.

© 1856 SCIENTIFIC AMERICAN, INC

TO CORRESPONDENTS.

R. T. V., of Pa.—You are mistaken in supposing that all Professors of Chemistry in our colleges are versed in the application of that science to the useful arts, as practiced in chemical manufactories.

E. H., of Va.—Southern flour is universally used by our pastry bakers in preference to that made from northern wheat. The dearest flour sold in New York market, this winter, came from Missouri.

R. J. C., of Conn.—Brass becomes elastic by hammering and rolling. Gold also becomes elastic by the same mechanical processes. If you wish to take the elasticity from gold, to enable you to bend it, heat it until it becomes red hot.

C. W., of Mass.—We cannot, at present, give you the desired information regarding corrugated black iron for roofing.

N.S., of Mass.—You can knead whiting or pipe clay with gutta percha, when heated above 212 degrees. Your belt cannot be made of pure gutta percha. If this substance is kneaded with black lead, lamp black, and pipe clay, and then vulcanized; it will become hard and durable.

G. K. & Co., of Ohio.—If you heat gutta percha it will become soft and plastic and make cement.

S. S., of Ind.—No patent could be secured for making axles and shafts hollow; hollow shafts are well known, but it is possible that you may have some new method of making them; if so you could patent it.

V. S., of S.C.—A little spermaceti and some gum arabic is mixed with the starch for the shirts, and the gloss is given to them by severe pressure and rapid rubbing with a pretty hot iron. They cannot and do not use the mangle for collars and bosoms; you can do it by hand, with considerable practice, but no person here wears glazed collars; they look too much like glazed calicoes. We do not know the price of the rotary smoothing iron.

S. M., of ——Yours on the Sun has been received, but we do not know when we can find room for it.

J. G., of Ill.—Your theory of anchor ice may be correct but reliable data is wanted.

L. H., of Ohio—One ounce of the sulphate of iron reduced to fine dust and mixed with pure lard—thoroughly incorporated with it in a mortar—makes an excellent pomatum for diseases of the skin, such as common pimples.

S. of N. Y.—Submarine armor, exactly like that described by you, is quite old: we have drawings of such an apparatus.

W. S., of Mich.—We do not know the nature of West's Galvanic Cement. Hydraulic cement mixed with oil and used as a paint, is about as good as any of the fire-proof cements, and is much cheaper.

A. H. G., of C. W.—Some allow the shafts of their circular saws to have two-eighths of an inch end play; others one-eighth of an inch. You must write to the maker of your saw, stating the work it has to do—whether sawing hard or soft timber—and obtain information regarding its "rake."

T. D. B., of Tenn.—Such a portable steam saw mill as you want can be had of George Vail & Co., Morristown, N. J.

Samuel J. West, of Houston, Texas, desires to correspond with the manufacturer of Burt's Solar Compass.

J. J. W., of N. J.—If you wish information about your molding machine please to send us a sketch and description of it; and don't be ashamed to sign your name to the letter.

W. W., of N. C.—Your wheel won't work; the reason is the same as stops the perpetual motion water wheel engraved a few weeks since in our paper. What do you mean by an endless weight for a clock? See our advertisement in the paper for terms.

H. J. W., of N. Y.—Do not enlarge, rather contract your chimney towards the top, but not more than one inch per seven feet.

T. A. C., of N. C.—Slack a bushel of lime in a cask, and add two pounds of salt and one pound of the sulphate of zinc, and mix it with water to the proper thickness for whitewashing. This is the best whitewash compound for out-houses and fences.

I. R. B., of Wis.—We are out of all the particular numbers to which you refer. An upright saw does not regularly increase in the cut from first to last with regular feed.

J. G., of Mass.—You may depend upon it that you will always be troubled with iron rust in your water while you use a wrought-iron tank. We recommend you to use a wooden tank.

H. W. F., of Wis.—If you have plenty of water in your creek you need not be very particular about your wheel. Get a strong one, well made in every part, and you cannot go wrong.

H. H., of N. Y.—You must mix some sulphate of copper with sulphate of iron in dyeing black with logwood.

W. McB., of N. Y.—Do not dig around your grape vines with a spade, use a fork for this purpose, or you will injure the fine roots that spread out near the surface of the ground. In warm dry weather cover the ground around the roots with litter: this is an excellent plan to prevent the tender roots near the surface from being scorched.

R. P. T., of Pa.—When water comes in contact with wrought iron and causes rust, hydrogen is set free.

Money received at the SCIENTIFIC AMERICAN Office on account of Patent Office business for the week ending Saturday, May 10, 1856:—

W. H., of Wis., $25; J. C. C., Jr., N. H., $30; S. S Mg, Co. of Ct., $55; J. J. U., of Pa., $30; T. C., Jr. of L. I., $30; N. L., of N. J., $30; D. Z., of Ind., $25; E. D., of N. Y., $25; G. & W., of Wis., $g5; J. S., of R. I., $25; S. & H., of N. J., $250; C. I. L. C. P., of N. Y., $50; J. C. S., of N. Y., $100; H. C., of Mass., $25: V. R., of N, Y., $30; J. B., of Ill., $25; W. H., of Pa., $25; C. R. S of Vt., $30; R. G., of N. Y., $30; W. M. B., of Ind. $10 J. B. C., of Ohio, $25; J. D. P., of Mass., $30; C. Van H., of Mass. $25; J. J., of Ct., $25; C. H., of N. H., $30; E. S. C., of Mess., $30; W. G., of Mass., $25; J. & A. W. and others, of Mass., $30; F. G. J., of N. Y., $159; M. & R., of N. Y., $30: A. C. R., of N. Y., $30; S. W. R., of Mass., $25; J. N. W., of N. Y., $25: F. K., of N. Y., $25; J. B. R., of N. Y., $200; J. L. B., of N. Y., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 10:—

H. C., of Mass.; J. L. G., of Ga.; L. J., of Conn.; C. I. & L. C. P., of N. Y., (2 cases); W. H., of Wis.; E. D., of N. Y.; G. & W., of Wis.; J. N. W., of N. Y.; F. K., of N. Y.; D. Z., of Ind.; W. H., of Pa.; J. B. C. of O.; J. R. C., of Ind.; C. Van H., of Mass.; J. S., of R. I.; J. I., of Conn.; W. G., of Mass.; S. W. R., of Mass.; A. C. R., of N. Y.; A. S. M., of Vt.; E. A. C., of N. Y.; G. A. M., of N. Y.; W. J. F. L., of Pa.

Important Items.

TO THE UNFORTUNATE—We are no longer able to supply the back numbers of the present volume previous to No. 27, except from 1 to 12. Such numbers as we have to furnish, are gratuitously supplied to such subscribers as failed to receive them; and we would take occasion to state, that any person failing to receive their paper regularly, will confer a favor by notifying us of the fact. Missing numbers should be ordered early, to insure their receipt, as an entire edition is often exhausted within ten days after the date of publication.

MODELS—We shall esteem it a great favor if inventos will always attach their names to such models as they send us. It will save us much trouble, and prevent the liability of their being mislaid.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office stating the name of the patentee, and enclosing $1 as fees for copying.

Literary Notices.

BLACKWOOD'S MAGAZINE—This redoubtable champion of British Tory politics, republished by L. Scott & Co., No. 54 Gold St., this city, is always able and full of vigor. The number for this month contains articles on The Laws Concerning Women, Allison's History of Europe, Prescott's Philip II., The Scot Abroad, &c. It is one of the best numbers ever published. A high and deserved compliment is paid to our gifted historian; his works are called *charming*; and the philosopher pursuing his speculations upon humanity, it is stated, "can nowhere find richer materials than in his volumes."

COURTSHIP AND MARRIAGE—By Mrs. Caroline Lee Hentz. An American tale, full of vivacity, interest, and graphic pen portraiture. The ups and downs, the joys and sorrows of daily life, are here pictured with singular fidelity. T. B. Peterson, Philadelphia, Pa., is the publisher.

INDIA: OR, THE PEARL OF PEARL RIVER—Another of those charming volumes from the fairy pen of Mrs. Emma Southworth. Her works are known all over the land as well for the absorbing interest which she weaves around her subjects as for the moral lesson which she always seeks to convey through them. T. B. Peterson, publisher, Philadelphia.

SELECTIONS FROM SPANISH POETS—By Professor G. F. de Vingut. This is a volume of translations into English from the most celebrated Spanish poetic writers. Those who are at all acquainted with the beauties of Spanish literature will at once conceive that this book must be, and it really is, a casket of gems. Lockwood & Sons, publishers, 411 Broadway, N. Y.

MAJOR JONES' SKETCHES OF TRAVEL—We have before noticed a book by that inimitable comic penman Major Jos. Jones, entitled, "Major Jones' Courtship." Having duly married and satisfactorily settled his domestic affairs, the Major starts off on a tour of observation from Georgia to Canada, and the present volume is the fruit thereof. It is brim full of the humorous, spiced with the moral, and over-running with the grotesque and amusing. The illustrations are by Darley. T. B. Peterson, publisher, Philadelphia.

LESLIE'S GAZETTE OF FASHION for May is an excellent number; full of engravings.

LESLIE'S NEW YORK JOURNAL for May is also very interesting. This is a pictorial work, large quarto size, full of good miscellaneous reading. Office No. 12 and 14 Spruce St., N. Y.

AMERICAN JOURNAL OF SCIENCE AND ART—We have received the May number of this valuable quarterly. It contains a number of highly valuable and interesting scientific contributions, from which we shall hereafter probably make extracts. Professors Silliman, Dana, Gray, Agassiz, and Gibbs are the editors. Putman & Co., N. Y., publishers.

Terms of Advertising.

4 lines, for each insertion,	$1
8 " "	$2
12 " "	$3
16 " "	$4

Advertisements exceeding 16 lines cannot be admitted neither can engravings be inserted in the advertising columns at any price,

☞ All advertisements must be paid for before inserting.

IMPORTANT TO INVENTORS.

THE UNDERSIGNED having had TEN years practical experience in soliciting PATENTS in this and foreign countries, beg to give notice that they continue to offer their services to all who may desire to secure Patents at home or abroad.

Over *three thousand* Letters Patent have been issued, whose papers were prepared at this Office, and on an average *fifteen*, or *one-third* of all the Patents issued each week, are on cases which are prepared at our Agency.

An able corps of Engineers, Examiners, Draughtsmen, and Specification writers are in constant employment, which renders us able to prepare applications on the shortest notice, while the experience of a long practice, and facilities which few others possess, we are able to give the most correct counsels to inventors in regard to the patentability of inventions placed before us for examination.

Private consultations respecting the patentability of inventions are held free of charge, with inventors, at our office, from 9 A. M., until 4 P. M. Parties residing at a distance are informed that it is generally unnecessary for them to incur the expense of attending in person, as all the steps necessary to secure a patent can be arranged by letter. A rough sketch and description of the improvement should be first forwarded, which we will examine and give an opinion as to patentability, without charge. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country.

Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps towards making an application.

In addition to the advantages which the long experience and great success of our firm in obtaining patents present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the SCIENTIFIC AMERICAN. This paper is read by not less than 100,000 persons every week, and enjoys a very wide spread and substantial influence.

Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

MUNN & CO.

American and Foreign Patent Attornies, Principal Office 128 Fulton street, New York.

ENGINEERS AND MACHINISTS TOOLS—A large assortment of superior tools for machine and railroad shops, together with a full supply of all articles required by those engaged in mechanical or manufacturing pursuits for sale by LEONARD & WILSON, 109 Pearl and 60 Beaver streets, N. Y. 36 4*

BULKLEY'S PATENT DRY KILNS, by super heated steam, will dry grain, flour, and meal, without scorching, at a cost of two cents per barrel. Also green inch lumber in 12 to 20 hours. Circulars sent free on application. H. G. BULKLEY.
36 3* Kalamazoo. Mich.

FORBES & BOND, Artists, 89 Nassau st, N.Y., Mechanical and general Draughtsmen on wood, stone, &c.

A PATENT FOR $1000—For further information address I. J. W. ADAMS, Sharp Town, Md.
36 2*

THE UNPARALLELED DEMAND for those superior Machinists Tools have caused the undersigned to remove their works permanently to buildings No. 475, 477, and 479 First Avenue, near 29th St., N. Y., where will be found on hand or made to order at shortest notice machinists tools of every variety and capacity warranted equal to the best in market, and terms moderate; also a quantity of second-hand tools.
36 2* CARPENTER & PLASS.

PREMIUM LATHES—These Lathes, built by Leonard & Clark, were awarded the Crystal Palace Bronze Medal and the Gold Medal of the American Institute. They are unequalled in construction and workmanship. All sizes, from 10 to 40 feet bed, and 18 to 40 inch. swing, contracted for by LEONARD & WILSON, Sole Agents, 109 Pearl and 60 Beaver sts., N. Y. 36 4*

WANTED—A situation by a practical machinist as foreman or manager of a machine shop, who has had several years experience in building stationary steam engines, mills, furnace, and pumping machinery; also understands drawing. Would be willing to take an interest in works doing a good business. References given.—Address E. SHIPLEY, Louisville, Ky. 35 3*

PATENT RIGHTS FOR SALE—The undersigned are prepared to sell State and County rights for Clapp's Improved Bench Hook and Clamp, a full description of which is given in the SCI. AM. of May 10th. This Bench Clamp, from its extreme cheapness, simplicity, and utility must come into universal use. Address, with postage stamp enclosed, to CLAPP & NUTTALL, Wappinger's Falls, Dutchess Co., N. Y. 35 4*

TRAVELING AGENTS WANTED for the sale of Patents and machines of several late improved agricultural implements. Experienced men preferred.—For particulars apply to JESSE URMY, Wilmington, Delaware. 35 2*

NOTICE—All orders and communications in regard to Manny's Reapers and Mowers for the Western and Southern States should be addressed to Manny & Co. Rockford, Ill. Orders and communications for Manny's Hay Press in the States of Illinois, Missouri, Iowa, Wisconsin and Michigan to be addressed to G. H. Manny, Rockford, Ill.; in the States of Kentucky, Tennessee, Ohio, Indiana and Southern Illinois should be addressed to H. B. Howard, Louisville, Ky.; and in the States of New York, New Jersey and Vermont should be addressed to H. Mercellius, Amsterdam, Montgomery Co., N. Y. All orders, etc., addressed as above will be promptly attended to. My address is Waddams Grove, Ill., where communications may be addressed and will receive prompt attention. PELLS MANNY. 35 2*

IRON FOUNDER'S FACING MATERIALS—Viz. Sea Coal, Hardwood Charcoal, Lehigh Coal, Soapstone, and German Black Lead finely pulverized; also Core Flour, Fire Clay, Fire Sand, and Fire Bricks, for sale by G. O. ROBERTSON, 135 Water st., New York.
35 4*

TO CAR BUILDERS—For Sale. One new Upright Boring Mill for boring car wheels. Makers price $600, will be sold for $400 cash. Address GEO. S. LINCOLN & CO., Hartford, Conn. 33 4*

PAGES PATENT PERPETUAL LIME KILN, will burn 100 bbls. lime with three cords of wood, every 24 hours, likewise my coal kiln will burn 150 bushel with 1 tun bituminous coal in the same time; coal is not mixed with limestone. Rights for sale.
32 4 C. D. PAGE, Rochester, N.Y.

PATENT IMPROVED GLOBE VALVES that can be made perfectly tight when new, and easily re-ground without being removed from the pipes; also Gauge Cocks with the same improvement; also plumber's brass work, steam and gas cocks, oil cups, &c. Rights for sale. McNAB, CARR & CO., 133 Mercer st., New York. 33 6*eow

PORTABLE STEAM ENGINES.—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2 1-2 horse can be seen in store, it occupies a space 5 by 3 feet, weighs 500 lbs., price $240; other sizes in proportion. 27 e3w

H. WELLS & CO., Florence, Hampshire Co., Mass.—Manufacturers of double and single patent premium Circular Saw Mills, of various capacities and styles, unsurpassed in point of Finish, Durability, and Utility. Morrison's Patent Shingle Machines, which rive, shave, and joint perfectly, 60 shingles per minute.—Self-Setting, Shingle, and Lath Sawing machines. Carpenter's Patent Rotary Force Pumps, admitted the best in the United States. Saw Mandrels, Sets and Set Punches, Mill Gearing, Shafting, &c. Orders by mail will receive prompt attention, and Cut, Circulars and Price Lists furnished when desired. 26 6t eow*

DRAWING INSTRUMENTS—The largest stock in the country, comprising our well-known German silver Swiss instruments, and German, French, and others Surveying and engineering instruments, warranted of the best construction and quality. Catalogues gratis.
AMSLER & WIRZ,
26 6eow* 211 Chestnut st., Phila., Pa.

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description, Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Guage, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, Machinery Oil of the most approved kind, etc.
CHARLES W. COPELAND,
27 eowtf Consulting Engineer, 64 Broadway.

ARTIFICIAL LEGS—Palmer's Patent—Manufactured at 378 Broadway, New York, Springfield, Mass., and 376 Chestnut st., Philadelphia, by PALMER & Co.—These legs are universally regarded, and recommended, as an invaluable boon to all who have suffered mutilation by amputation, by all of the first surgeons in Europe and America; by all the Institutes for the promotion of Arts, and by the several thousands of persons now blest with them in their daily use. Pamphlets containing the most reliable information are sent gratis to all who apply for them. 26 6 eow*

BIRMINGHAM IRON FOUNDRY—Manufacturers of Iron and Composition Castings, Chilled Rolls, Mill Gearing, Fan Blowers, Trip Hammers, Shafting, Shears, Presses, &c. &c. India Rubber Calenders, Grinding and Cutting Machines, Turbine and Centervent Water Wheels. Also, contractors for Breast and Overshot Wood Wheels. Address SHELDON BASSETT, Prest., Birmingham, Conn. 232 6eow

NOTICE—This certifies that H. B. Simonds has sold me all right (for the United States) in his Improved mode of Attaching Hubs to Axles. CLARK SIMONDS, 2d, West Hartford, Vt. 34 2eo*

HARRISON'S GRIST MILLS—20, 30, 36 and 48 inches diameter, at $100, $200, $300, and $400, with all the modern improvements; Bolters, Elevators, Belting, &c. &c. Also, Portable and Stationary Steam Engines of all sizes, suitable for said Mills. Apply to
32 eowtf S. C. HILLS, 12 Platt st., N. Y.

LYON'S COPPER LIGHTNING CONDUCTOR—Patented July 11, 1854. The subscribers have purchased the entire interest of the patentee in the manufacture of these celebrated conductors, and are prepared to furnish them with the appropriate fixtures to all parties holding the right to territory, in any quantity and on short notice. Circulars sent on application. Address, BRITTAN & EDMONDS, Lockport, N. Y. 27 4 oam

MACHINERY—S.C. HILLS, No. 12 Platt street, N Y., dealer in Steam Engines, Boilers, Planers, Lathes Chucks, Drills, Pumps; Mortising, Tenoning, and Sash Machines, Woodworth's and Daniel's Planers; Dick's Punches, Presses, and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c 26 e3w

CIRCULAR SAWS—We respectfully call the attention of manufacturers of lumber to the great improvements recently introduced in the manufacture of our Circular Saws. Being sole proprietors of Southwell's patent for grinding saws, we are enabled to grind circular saws from six inches to six feet with the greatest accuracy and precision. The impossibility of grinding a saw without leaving it uneven in thickness has always been acknowledged by practical saw makers. This causes the saw to expand as soon as it becomes slightly heated in working. When this takes place the saw loses its stiffness, and will not cut in a direct line. We will warrant our saws to be free from these defects; they are made perfectly even in thickness, or gradually increase in thickness from the edge to the center, as may be desired. As there are no thick or thin places, the friction on the surface of the saw is uniform, consequently it will remain stiff and true, and will require less set and less power. Will saw smooth, save lumber, and will not be liable to become untrue. This is the oldest establishment now in existence for the manufacture of circular saws in the United States, having been established in the year 1830. Orders received at our Warehouse, No. 48 Congress st., Boston.
12 6m* WELCH & GRIFFITHS.

SCHENCK MACHINERY DEPOT—163 Greenwich street, New York, keeps always on hand Lathes, Planers, Drills, Steam Engines, Woodworth's Patent Planing Machines, Belting, &c., in great Variety. Tools furnished of any size, to order, and of the best quality.
26 16* A. L. ACKERMAN, Proprietor.

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
LOGAN & LIDGERWOOD,
13 1y* 9 Gold st., N. Y.

VERTICAL STEAM ENGINE and Boiler for Sale at a bargain. The Engine is nearly new, and well finished. The cylinder is 9 inches; the fly wheel is a band wheel 5 feet in diameter, face 14 inches, turned off, weight 1350 lbs. The boiler is 20 feet long, 42 inches in diameter, 1 flue 17 inches, well braced wrought-iron heads; it is very strong, and has been in use about six months; is about 15-horse power. Cost $1200, will be sold or $675 cash; delivered on ship board. Apply to MUNN & CO., at this office.

MACHINISTS' TOOLS.—Meriden Machine Co have on hand at their New York Office, 15 Gold street, a great variety of Machinists' Tools, Hand and Power Punching Presses, Forcing Pumps, Machine Belting, &c., all of the best quality. Factory West Meriden, Conn. 32 13*

THE AMERICAN PLATE GLASS CO. Having erected extensive works in East Brooklyn, (foot of North Sixth st.) are now prepared to execute promptly all orders forwarded to them for Rough Plate Glass, for Sky Lights, Floor Lights, Pavements, Deck Lights for vessels, &c. Also an entirely new article possessing the properties and beauties of Agate, called Chalcedon. This material supersedes Marble, in its superior quality and utility for the purpose of Flooring, Mantel Pieces, Table Tops, and Ornamental Architecture. All orders left at the Office of the Company will receive prompt attention. Office 420 Broadway. Rough Plate Glass in the Sheet at the factory, 1-4 in. 35c.; 3-8 in. 35c.; 1-2 in. 40c.; 5-8 in. 60c.; 3-4 in. 75c.; 7-8 in. 80.; 1 in. 85c.; 1 1-4 in. $1·25. Terms cash in 30 days. 27 13*

1856.—WOODWORTH'S PATENT Planing, Tongueing and Grooving Machines.—The subscriber is constantly manufacturing, and has now for sale the best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied Towns in New York and Northern Pennsylvania, JOHN GIBSON, Planing Mills, Albany, N. Y. 30 3m*

WAILEY'S CATTLE, HAY, AND COAL SCALES—Are warranted of the most approved construction, and can be shipped to any part of the United States. The scale is all iron; brass beam, drawing as low as half a pound, and the bearings are of the best cast steel. Apply to the subscriber for a circular giving all the particulars. C. W. WAILEY,
34 3* Lexington, Ky.

BOILER INCRUSTATIONS—No scale will form in the boiler when Weissenborn's Patent Incrustation Preventor is used. At the same time the apparatus is the best Heater that can be obtained. Apply to E. W. SARGENT, Delmonico's Hotel, New York City. 25 12*

FILMER & CO., Electrotypers, and Manufacturers of Electrotype Materials, 128 Fulton st., N. Y. Molding Presses, Batteries, Cases, Backing Pans, Shaving Machines, Metal Kettles, Planes, Blocks, Building Irons, etc., etc., on hand, or furnished at short notice, and at moderate charges. Adams' Improved batteries and black-lead machines also for sale. 23 tf

HARRISON'S 30 INCH GRAIN MILLS—Latest Patent.—A supply constantly on hand. Price $200. Address New Haven Manufacturing Co., New Haven, Conn. 31tf

PATENT ALARM WHISTLE—For Speaking Pipes. The right of a limited number of the Southern States, of this valuable patent, for sale on reasonable terms. Apply to W. OSTRANDER, No. 57 Ann street, N. Y. 29 13

STEAM PUMPS AND FIRE ENGINES—Steam Pumping Engines for wrecking purposes, Irrigating and Draining Lands, Deep Mining Shafts, Quaries, and Excavations, Railroad Stations, Factories, Public Institutions, Hotels, Gas Works, Steamers, &c. Also a large and improved class of Pumping Engines for supplying Cities, Towns, and Villages. Apply to H. R. WORTHINGTON, 28 Broadway, New York City. 25 13*

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 33 tf

NORCROSS ROTARY PLANING MACHINE.—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb, 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks is not an infringement of the Woodworth Patent.
Rights to use the N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.
Office for sale of rights at 208 Broadway, New York Boston, 27 State street, and Lowell, Mass. 19 6m*

GRAIN MILLS—EDWARD HARRISON, of New Haven, Conn., has on hand for sale, and is constantly manufacturing to order, a great variety of his approved Flour and Grain Mills, including Bolting Machinery, Elevators, complete with Mills ready for use. Orders addressed as above to the patentee, who is the exclusive manufacturer, will be supplied with the latest improvements. Cut sent to applications, and all mills warranted to give satisfaction. 29tf

NEW HAVEN MFG. CO.—Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These Tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address, "New Haven Manufacturing Co New Haven, Conn. 19 tf

AGENCY FOR THE PURCHASE AND SALE of valuable patents and inventions, T. H. LEAVITT, No. 1 Phœnix Buildings, Boston. None but matters of real merit and utility will receive any attention. Circulars containing further information may be had on application. 29 12*

© 1856 SCIENTIFIC AMERICAN, INC

Science and Art.

The New Atlantic Telegraph Cable.

The cable of the New York and Newfoundland Telegraph Company, which was lost from the steamer *James Adger*, weighed five tuns to the mile, had three conducting wires, each about as thick as a knitting-needle, and a flaw of either of these was sufficient to stop the electric current from one end to the other.

The new cable now making in England will be made of small copper wires twisted together, and will not be more than half the thickness of the old cable. According to the contract, this should be laid and in working order next month.

The Trans-Atlantic cable will have but one conductor made like the above, and will weigh about three fourths of a tun to the mile. The distance rom St. Johns, Newfoundland, to the nearest point on the southern coast of Ireland is 1,647 miles. The cable will be 2,400 miles long, and is to be laid by two steamers, each of them to have on board 1,200 miles of cable, weighing 900 tuns. After joining the ends of the coils, and dropping them in the ocean midway between the two points they are to connect, they will start for their separate places of destination. It is estimated that ten days will be required to accomplish this work.

The Iron of the World.

The annual production of crude iron throughout the world is estimated at 6,000,000 tuns. Of this, Great Britian produces 3,000,000, France 750,000, Prussia 300,000, Austria, 250,000, Belgium 200,000, Russia 200,000, Sweden 150,000, the lesser German States 100,000, the United States 750,000, and other countries 300,000.

Philadelphia Flour Mills.

In Philadelphia there are 15 steam flour mills. They grind up 52,245 bushels of wheat weekly, and manufacture 11,610 barrels of flour. The number of runs of stones which do this is 68.

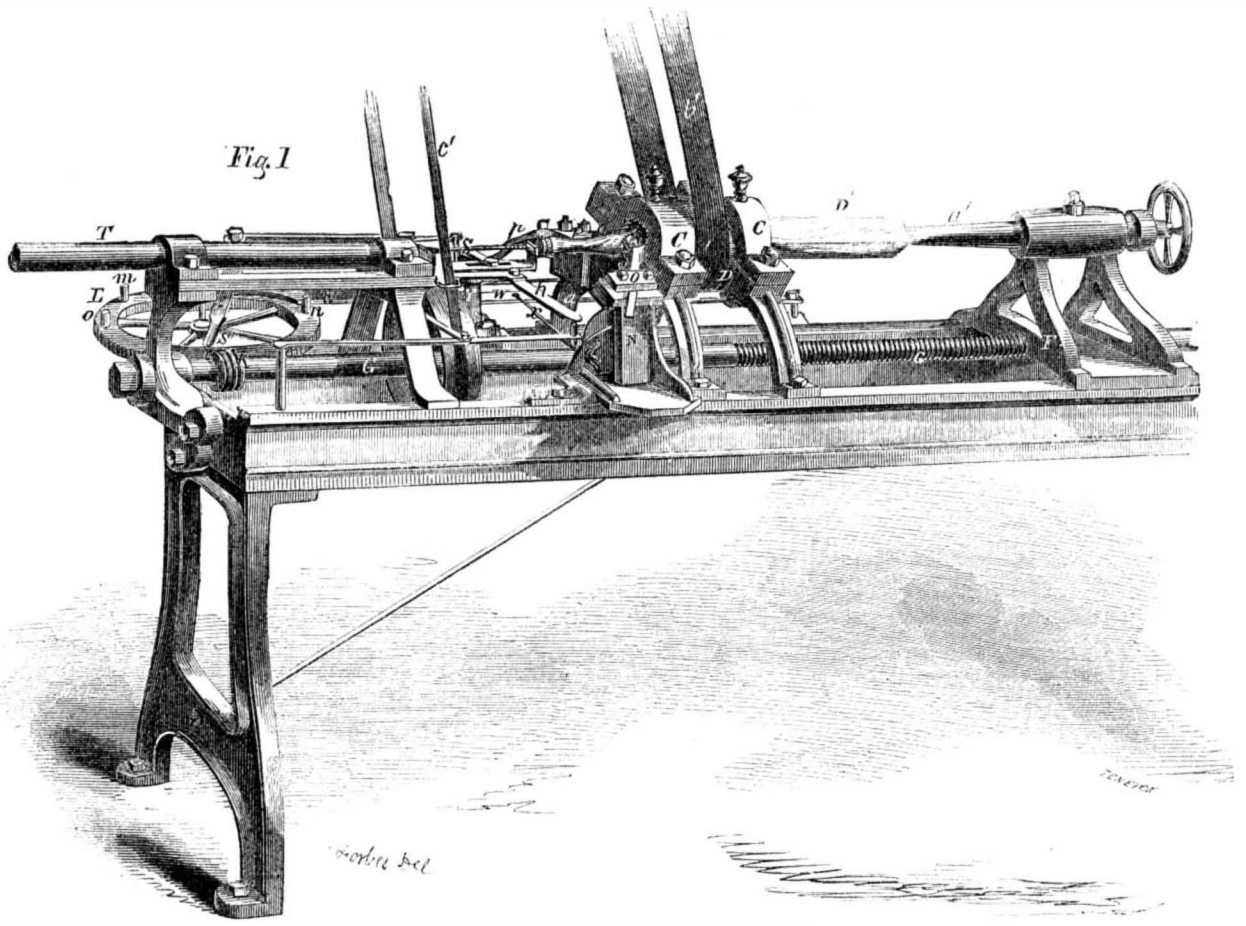
Improved Turning Lathe.

The improvement herewith illustrated, forms the subject of Letters Patent granted Oct. 10, 1854, to Samuel Carpenter, of Flushing, L I. The invention is intended for the turning of regular forms, of different patterns, such as table legs, bedstead posts, ornamental pickets, tool handles, &c. The variety of pattern to which it can be extended is almost indefinite.

In our engraving, C C are the bearings of a hollow mandrel, D, through which the stuff to be turned, D′, is pushed (as per arrow) by the centerer, *a*′, of carriage F; the latter is drawn along by means of screw G, operated by belt *c*. Within the mandrel there are longitudinal springs which bind on the stuff and prevent it from wabbling, while at the same time they permit it to feed through. O O are cutting tools which act on the stuff as fast as it issues from the mandrel; O O are attached respectively to spring holders, N and P, and it is by the moving out or in of these holders, thus causing the cutters to cut deeper or less, that the wood is fashioned. The movement of N and P is effected by connection with the lever, W, having at one end a pattern plate, against which the pins, *m n o*, press, while wheel, L. on which the pins are placed, revolves. The cutters will therefore produce a form in the wood which is just the reverse of the pattern plate. Any desired form may be obtained by producing a pattern plate for the purpose; and the lathe may be quickly changed from one description of work to another, by simply changing the pattern plate. The number of pins on wheel N, will depend on the length of the pattern plate; if the article turned is small, the number of pins may be increased. The holder, N, is connected with lever W, by means of the cross rod, *x*, and holder, P, by means of the tail piece, or lever, *p*. Wheel L is rotated by gearing with screw K. Attached to rod T is a bit, S, for boring the handle or whatever article is being turned; the bit is moved up by means of hand lever S′; there is a gauge for regulating the exact depth to which bit S bores the article; *h* is a lever which throws off the belt, *c*, and stops the feed screw, G, the instant that a given pattern is finished.

IMPROVEMENT IN TURNING LATHES.

Fig. 1



We have seen specimens of work produced by this machine which were perfectly finished and smoothed, requiring no after retouching.

We have also witnessed the operations of the lathe; it works with great rapidity and precision; 500 handles can be turned per hour with ease; the parts are strong and simple; it is in our opinion a most excellent. practical invention.

Mr. Charles Barnum, 29 Park Row, New York City, is the assignee of the improvement and will be happy to give further information.

MACHINE FOR BENDING PLOW HANDLES.

This is the invention of Mr. Benjamin F. Avery, of Louisville, Ky. Patented Jan. 22d, 1856. It consists of a block, A, to which the former, B, is attached by means of a staple, C. The former, B, is furnished with two curved shelves, D D′, over the top of which the plow handles, E, are bent. F is a seat attached to former, C, for receiving the lower end of the handle. After the handles have been steamed they are clamped in an upright position by means of the screw spring rod, G, the spur nut of which, G′, holds the upper end of the handle while the lower end sets in seat F. The lower end of rod, G, hooks under the bottom of seat F. By turning the hand screw seen at the end of each spring rod, the plow handle is clamped with any desired degree of firmness. When thus placed and secured it is ready for bending, which operation consists in pulling the handle and spring rod down, from the upright to a horizontal position, as shown in the cut. The spring rod is looped at G″, so that when bent down a pin may be inserted across the back of the handle and through one of the holes in the outer extremity of former, B, so as to hold the handles down; thus secured they may be left in a bent position as long as necessary. Two handles may be simultaneously bent at once, one on each shelf (D D′). H is an extra steel spring. I is a hook to hold up spring rod G in a perpendicular position.

Fig. 1

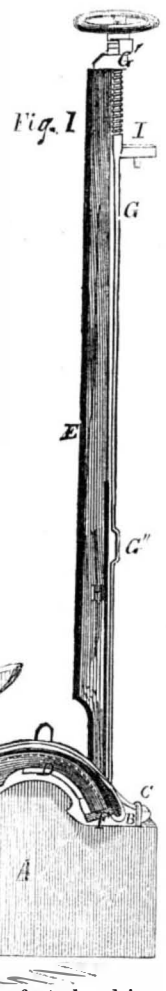
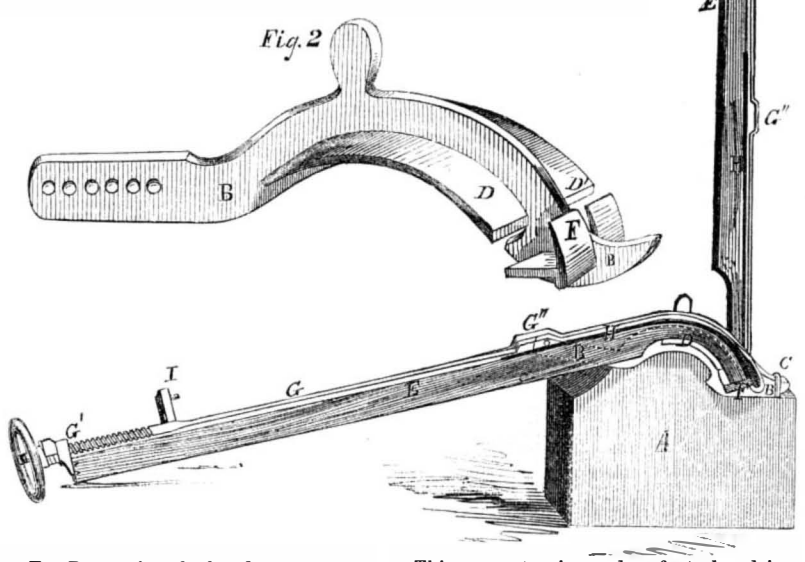


Fig. 2



This apparatus is made of steel and iron therefore it is very strong and durable. It is the essence of simplicity, while the work it produces is said to be of the best quality. The fiber of the wood, we are informed, is not stretched during the bending operation, as in other machines, consequently, nearly every handle comes out perfect. By its use ordinary tough wood can be bent over a ten-inch curve and yet remain solid and sound, we are told; so that a choice of small trees is not required It may be operated with great facility. The inventor states that with one man and a boy using a single machine, 1000 handles can be bent in ten hours. The expense of construction is quite small, being only from $4 to $7. For further information address the patentee.

MECHANICS
Inventors, and Manufacturers

ELEVENTH YEAR

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This work differs materially from other publications beingan ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Every number of the *SCIENTIFIC AMERICAN* contains *Eight Large Pages*, of reading, abundantly illustrated with *ENGRAVINGS*,—all of them engraved expressly for this publication.

REPORTS OF U. S. PATENTS granted are also published every week, including *Official Copies* of all the PATENT CLAIMS. These Claims are published in the Scientific American *in advance of all other papers.*

This publication differs entirely from the magazines and papers which flood the country. It is a Weekly Journal of *ART, SCIENCE*, and *MECHANICS*,—having for its object the advancement of the interests of *MECHANICS, MANUFACTURERS*, and *INVENTORS*. Each number is illustrated with from *Five to Ten Original Engravings* of new *MECHANICAL INVENTIONS;* nearly al of the best inventions which are patented at Washington being illustrated in the Scientific American. The *SCIENTIFIC AMERICAN* is the most popular journal of the kind ever published, and of more importance to the interest of MECHANICS and INVENTORS than any thing they could possibly obtain! To Farmers it is also particularly useful, as it will apprise them of all *Agricultural Improvements*, instruct them in various *Mechanical Trades*, &c. &c.

TERMS :—$2 a-year ; $1 for half a year,

Southern, Western, Canada Money, or Post Office Stamps taken at their par value for subscriptions. Letters should be directed (invariably post-paid) to

MUNN & CO.,
128 Fulton street, New York

CLUB RATES.

Five Copies for Six Months,	$4
Ten Copies for Six Months, -	$8
Ten Copies for Twelve Months,	$15
Fifteen Copies for Twelve Months,	$22
Twenty Copies for Twelve Months,	$28

© 1856 SCIENTIFIC AMERICAN, INC